

NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

**A STATISTICAL ANALYSIS OF THE PERFORMANCE OF
NAVAL ACADEMY GRADUATES AT THE BASIC
OFFICER COURSE**

by

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June 2002

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This thesis examines the performance of Naval Academy Graduates at the Marine Corps' Basic Officer Course conducted at The Basic School in Quantico, Virginia. The study reviews the Marine Officer Commissioning and Training programs available and provides an overview of the mission and goals of Officer Candidates School and The Basic School. The study examines Marine Corps training programs used at the Naval Academy between 1988 and 1999 with an overview of Marine Corps exposure programs and Marine-specific training programs designed to prepare aspiring midshipmen for service in the Marine Corps. The analysis includes a review of the Naval Academy's service selection and service assignment processes. The models used in this study focus on the impact of Marine-specific summer training for Naval Academy midshipmen on class standing at The Basic School for newly commissioned Second Lieutenants who attended the Academy. Ordinary least squares estimation techniques provide the effects of the selected independent variables on students' success at The Basic School. The results of the study indicate that those completing the OCS/Bulldog summer training program had a significantly higher class standing at The Basic School than other Marine-specific summer training programs.

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ACADEMY GRADUATES AT THE BASIC OFFICER COURSE**

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Major, United States Marine Corps
B.S., United States Naval Academy, 1991

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This thesis examines the performance of Naval Academy Graduates at the Marine Corps' Basic Officer Course conducted at The Basic School in Quantico, Virginia. The study reviews the Marine Officer Commissioning and Training programs available and provides an overview of the mission and goals of Officer Candidates School and The Basic School. The study examines Marine Corps training programs used at the Naval Academy between 1988 and 1999 with an overview of Marine Corps exposure programs and Marine-specific training programs designed to prepare aspiring midshipmen for service in the Marine Corps. The analysis includes a review of the Naval Academy's service selection and service assignment processes. The models used in this study focus on the impact of Marine-specific summer training for Naval Academy midshipmen on class standing at The Basic School for newly commissioned Second Lieutenants who attended the Academy. Ordinary least squares estimation techniques provide the effects of the selected independent variables on students' success at The Basic School. The results of the study indicate that those completing the OCS/Bulldog summer training program had a significantly higher class standing at The Basic School than other Marine-specific summer training programs.

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TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	BACKGROUND	1
B.	PURPOSE.....	2
C.	RESEARCH QUESTIONS	3
D.	BENEFITS OF STUDY.....	3
E.	SCOPE AND METHODOLOGY	3
F.	ORGANIZATION OF STUDY	3
II.	MARINE OFFICER COMMISSIONING AND TRAINING PROGRAMS.....	5
A.	INTRODUCTION.....	5
B.	MARINE OFFICER COMMISSIONING OPTIONS	5
1.	Ground Option.....	5
2.	Aviation Option.....	5
3.	Law Option.....	6
C.	MARINE OFFICER COMMISSIONING SOURCES	6
1.	Naval Academy	6
a.	<i>Overview</i>	6
b.	<i>Eligibility Requirements</i>	7
c.	<i>Training</i>	9
2.	Naval Reserve Officer Training Corps (NROTC) Marine Option.....	11
a.	<i>Overview</i>	11
b.	<i>Eligibility Requirements</i>	12
c.	<i>Training</i>	13
3.	Platoon Leaders Class (PLC).....	14
a.	<i>Overview</i>	14
b.	<i>Eligibility Requirements</i>	14
c.	<i>Training</i>	15
4.	Officer Candidate Course (OCC)	16
a.	<i>Overview</i>	16
b.	<i>Eligibility Requirements</i>	16
c.	<i>Training</i>	16
5.	Marine Corps Enlisted Commissioning Education Program (MECEP).....	17
a.	<i>Overview</i>	17
b.	<i>Eligibility Requirements</i>	17
c.	<i>Training</i>	18
6.	Enlisted Commissioning Program (ECP)	19
a.	<i>Overview</i>	19
b.	<i>Eligibility Requirements</i>	20
c.	<i>Training</i>	21

7.	Meritorious Commissioning Program (MCP).....	21
a.	<i>Overview</i>	21
b.	<i>Eligibility Requirements</i>	21
c.	<i>Training</i>	22
8.	Direct Commissioning Program (DCP)	23
a.	<i>Overview</i>	23
b.	<i>Eligibility Requirements</i>	23
c.	<i>Training</i>	24
D.	OFFICER CANDIDATES SCHOOL	25
1.	Mission	25
2.	Overview.....	25
E.	THE BASIC SCHOOL (TBS).....	26
1.	Mission of The Basic School	26
2.	Training Goals	26
3.	Critical Preparation Areas.....	27
a.	<i>Leader/Commander</i>	27
b.	<i>Decision Maker</i>	27
c.	<i>Communicator</i>	28
d.	<i>Warfighter/Executor</i>	28
e.	<i>Life-long Learner</i>	29
4.	Evaluation of Officer Students	29
a.	<i>Overview</i>	29
b.	<i>Leadership</i>	30
c.	<i>Military Skills</i>	31
d.	<i>Academics</i>	33
F.	CHAPTER SUMMARY.....	33
III.	THE NAVAL ACADEMY AND MARINE CORPS PROGRAMS.....	35
A.	INTRODUCTION	35
B.	MARINE CORPS EXPOSURE PROGRAMS	35
1.	Professional Training of Midshipmen (PROTRAMID).....	35
2.	Midshipmen Leadership Training (MLT)	37
3.	Naval Tactical Training (NTT)	38
C.	MARINE CORPS PREPARATION TRAINING PROGRAMS	38
1.	None (Classes of 1993, 1988 and earlier)	39
2.	Bulldog (Classes of 1989-1991)	39
3.	Leatherneck (Class of 1994-Present).....	41
4.	Junior Officer Practicum Course (Class of 1995 to present).....	43
D.	NAVAL ACADEMY WARFARE SELECTION/ASSIGNMENT PROCESS	44
1.	Service Selection (Classes of 1994 and earlier)	44
2.	Service Assignment (Class of 1995-Present).....	46
a.	<i>Interview Phase</i>	46
b.	<i>Community Screening Phase</i>	46
c.	<i>Preference Designation Phase</i>	47
d.	<i>Assignment Phase</i>	47

e. <i>Review/Final Approval</i>	47
E. CHAPTER SUMMARY	48
IV. NORTH AND SMITH STUDY	49
A. INTRODUCTION.....	49
B. REVIEW.....	49
C. SUMMARY	51
V. RESEARCH METHODOLOGY	53
A. INTRODUCTION.....	53
B. DATA SOURCES	53
1. Naval Academy Data	53
2. Headquarters Marine Corps Data	54
3. The Merged USNA/HQMC File	56
C. RESEARCH MODEL	56
1. Background	56
2. Primary Assumptions	58
D. EMPIRICAL ANALYSIS	60
E. CHAPTER SUMMARY.....	68
VI. RESULTS OF THE MULTIVARIATE MODELS	69
A. INTRODUCTION.....	69
B. PRIMARY MODEL.....	69
C. SECONDARY MODEL	70
D. ANALYSES	70
E. DATA ANALYSIS	71
VII. CONCLUSIONS AND RECOMMENDATIONS	85
A. CONCLUSIONS	85
1. Naval Academy Performance	86
2. Summer Training Program	86
3. Ethnic Background	87
4. Prior Enlisted Experience	88
5. Varsity Letter Recipients.....	88
6. Commissioning Age	89
7. Parents' Military Service	89
8. Air Contracts	89
9. Naval Academy Academic Major.....	89
10. Service Selection.....	90
B. RESEARCH QUESTIONS	91
1. What years provided the best overall performance of Naval Academy graduates at The Basic School?	91
2. What factors at the Naval Academy are associated with strong performance at The Basic School?	92
3. Which training program best prepared Naval Academy Midshipmen for success at The Basic School?	93
4. How can performance of future Naval Academy graduates at The Basic School be improved?	93

C. RECOMMENDATIONS.....	93
D. RECOMMENDATIONS FOR FUTURE RESEARCH.....	97
APPENDIX A. DATASET FREQUENCY COUNTS AND FREQUENCY ANALYSES	99
APPENDIX B. EMPIRICAL DATA ANALYSIS	109
APPENDIX C. REGRESSION ANALYSIS RESULTS	119
LIST OF REFERENCES	123
INITIAL DISTRIBUTION LIST	127

LIST OF FIGURES

Figure 1.	Naval Academy Accession Sequence (FY 2002)	7
Figure 2.	Naval Reserve Officer Training Corps (Marine Option) Accession Sequence (FY 2002).....	12
Figure 3.	Platoon Leader Class and Officer Candidate Class Accession Sequence (FY 2002).....	15
Figure 4.	Marine Corps Enlisted Commissioning Education Program Accession Sequence (FY 2002).....	18
Figure 5.	Enlisted Commissioning Program and Meritorious Commissioning Program Accession Sequence (FY 2002).....	20
Figure 6.	Direct Commissioning Program Accession Sequence (FY 2002).....	24
Figure 7.	Sample and Predicted TBS Class Standing Percentile by Summer Training Program.....	75
Figure 8.	Sample and Predicted TBS Class Standing Percentile by Naval Academy Varsity Letter Winner Status	76
Figure 9.	Sample and Predicted TBS Class Standing Percentile by Prior Enlisted Experience.....	77
Figure 10.	Sample and Predicted TBS Class Standing Percentile by Race/Ethnic Category.....	78
Figure 11.	Sample and Predicted TBS Class Standing Percentile by Aviation or Ground Option	79
Figure 12.	Sample and Predicted TBS Class Standing Percentile by Academic Major Groups.....	80
Figure 13.	Sample and Predicted TBS Class Standing Percentile by Service Selection or Service Assignment/Capstone Course Participation	81

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LIST OF TABLES

Table 1.	Scholastic Assessment Test I (SAT-I) and American College Testing (ACT) Scores from a Recent Naval Academy Entering Class.	9
Table 2.	Graded Military Skills Events During The Basic Officer Course.	32
Table 3.	Graded Academic Events During The Basic Officer Course.	33
Table 4.	Marine Specific Training Programs at The Naval Academy (1988-1999)....	48
Table 5.	Description of Variables Used in the Study.....	54
Table 6.	Academic Majors Available at The Naval Academy During the Subject Period	55
Table 7.	Hypothesized Effects of Selected Independent Variables on TBS Standing Percentile.....	60
Table 8.	TBS Class Standing Percentile by Summer Training Program.....	61
Table 9.	TBS Class Standing Percentile by Varsity Letter Winners	62
Table 10.	Ages at Commissioning by Summer Training Program.....	62
Table 11.	TBS Class Standing Percentile by Age at Commissioning	63
Table 12.	TBS Class Standing Percentile by Prior Enlisted Experience	63
Table 13.	TBS Class Standing Percentile by Ethnic Category	64
Table 14.	TBS Class Standing Percentile by MOS Guarantee	64
Table 15.	USNA Order of Merit Percentile by Summer Training Program.....	65
Table 16.	USNA Academic QPR (AQPR) by Summer Training Program	65
Table 17.	USNA Military QPR (MQPR) by Summer Training Program.....	66
Table 18.	TBS Class Standing Percentile by Academic Major Grouping	66
Table 19.	TBS Class Standing Percentile by Service Selection Participation.....	67
Table 20.	TBS Class Standing Percentile by Parents' Military Experience	68
Table 21.	Ordinary Least Squares Estimates of TBS Class Standing Percentile (Primary Model).....	72
Table 22.	Ordinary Least Squares Estimates of TBS Class Standing Percentile (Secondary Model).....	73
Table 23.	Statistically Significant Predictors (Primary Model)	85
Table 24.	Statistically Significant Predictors (Secondary Model)	86
Table A-1.	Dataset Variable Frequency Counts Part 1	99
Table A-2.	Dataset Frequency Counts Part 2	99
Table A-3.	Dataset Frequency Counts Part 3	99
Table A-4.	Dataset Frequency Counts Part 4	99
Table A-5.	Dataset Frequency Counts Part 5	99
Table A-6.	Dataset Frequency Counts Part 6	100
Table A-7.	Naval Academy Graduating Class (grad_yr) Frequency Table	100
Table A-8.	Naval Academy Varsity Letter Winner (var_ltr) Frequency Table	100
Table A-9.	Commissioning Age (agecomm) Frequency Table	100
Table A-10.	Ethnicity (ethnic) Frequency Table	101
Table A-11.	Ethnic White (ethwhite) Frequency Table	101
Table A-12.	Ethnic Black (ethblack) Frequency Table.....	101

Table A-13.	Ethnic Hispanic (ethhisp) Frequency Table	101
Table A-14.	Ethnic Other (ethother) Frequency Table	101
Table A-15.	Parents Military Experience (svcjrcm) Frequency Table	102
Table A-16.	Parents with Non-Marine Corps Military Experience (svcjrn) Frequency Table	102
Table A-17.	Parents with Marine Corps Military Experience (svcjrmr) Frequency Table	102
Table A-18.	Parents without Military Experience (svcjrn) Frequency Table	102
Table A-19.	Prior Enlisted Experience (prior) Frequency Table	103
Table A-20.	Prior Enlisted Service (Non-Marine) (prisvc) Frequency Table	103
Table A-21.	Prior Enlisted Service (Marine) (primarne) Frequency Table	103
Table A-22.	No Prior Enlisted Service (prinone) Frequency Table	103
Table A-23.	Gender (gender) Frequency Table	103
Table A-24.	Naval Academy Summer Training Program (sumtrn) Frequency Table	104
Table A-25.	OCS/Bulldog Summer Training Program (bulldog) Frequency Table	104
Table A-26.	Leatherneck Summer Training Program (ltrneck) Frequency Table	104
Table A-27.	No Marine-Specific Summer Training Program (notrng) Frequency Table	104
Table A-28.	Aviation/Ground Option (contract) Frequency Table	104
Table A-29.	Aviation Option (aircont) Frequency Table	105
Table A-30.	Ground Option (grndmos) Frequency Table	105
Table A-31.	Naval Academy Academic Major (ac_major) Frequency Table	105
Table A-32.	Naval Academy Academic Major Group (majgroup) Frequency Table	106
Table A-33.	Naval Academy Group-1 Academic Major (group1) Frequency Table	106
Table A-34.	Naval Academy Group-2 Academic Major (group2) Frequency Table	106
Table A-35.	Naval Academy Group-3 Academic Major (group3) Frequency Table	106
Table A-36.	Naval Academy Service Selection Participant (servsel) Frequency Table	106
Table A-37.	Naval Academy Service Assignment and Junior Officer Practicum/Capstone Course Participant (servasmt) Frequency Table	107
Table B-1.	TBS Class Standing Percentile by Summer Training Program	109
Table B-2.	TBS Class Standing Percentile by Summer Training Program ANOVA	109
Table B-3.	TBS Class Standing Percentile by Varsity Letter Winners	109
Table B-4.	TBS Class Standing Percentile by Varsity Letter Winners Independent Samples T-Test	109
Table B-5.	Ages at Commissioning by Summer Training Program	110
Table B-6.	Ages at Commissioning by Summer Training Program ANOVA	110
Table B-7.	TBS Class Standing Percentile by Age at Commissioning	110
Table B-8.	TBS Class Standing Percentile by Age at Commissioning ANOVA	110
Table B-9.	TBS Class Standing Percentile by Prior Enlisted Experience	111
Table B-10.	TBS Class Standing Percentile by Prior Enlisted Experience ANOVA	111
Table B-11.	TBS Class Standing Percentile by Ethnic Category	111
Table B-12.	TBS Class Standing Percentile by Ethnic Category ANOVA	111
Table B-13.	TBS Class Standing Percentile by MOS Guarantee	112
Table B-14.	TBS Class Standing Percentile by MOS Guarantee Independent Samples T-Test	112
Table B-15.	USNA Order of Merit Percentile by Summer Training Program	112

Table B-16.	USNA Order of Merit Percentile by Summer Training Program ANOVA...	112
Table B-17.	USNA Academic QPR by Summer Training Program.....	113
Table B-18.	USNA Academic QPR by Summer Training Program ANOVA	113
Table B-19.	USNA Military QPR by Summer Training Program.....	113
Table B-20.	USNA Military QPR by Summer Training Program ANOVA	113
Table B-21.	TBS Class Standing Percentile by Academic Major Grouping	114
Table B-22.	TBS Class Standing Percentile by Academic Major Grouping ANOVA.....	114
Table B-23.	TBS Class Standing Percentile by Service Selection or Service Assignment/Capstone Course Participant	114
Table B-24.	TBS Class Standing Percentile by Service Selection or Service Assignment/Capstone Course Participant Independent Samples T-Test.....	114
Table B-25.	TBS Class Standing Percentile by Parents' Military Service Experience	115
Table B-26.	TBS Class Standing Percentile by Parents' Military Service Experience ANOVA	115
Table B-27.	USNA Order of Merit Percentile by Academic Major Group	115
Table B-28.	USNA Order of Merit Percentile by Academic Major Group ANOVA	115
Table B-29.	USNA MQPR by Academic Major Group	116
Table B-30.	USNA MQPR by Academic Major Group ANOVA.....	116
Table B-31.	USNA AQPR by Academic Major Group	116
Table B-32.	USNA AQPR by Academic Major Group ANOVA	116
Table B-33.	USNA Order of Merit Percentile by Race/Ethnic Group	117
Table B-34.	USNA Order of Merit Percentile by Race/Ethnic Group ANOVA.....	117
Table B-35.	USNA Cumulative Military QPR by Race/Ethnic Group	117
Table B-36.	USNA Cumulative Military QPR by Race/Ethnic Group ANOVA	117
Table B-37.	USNA Cumulative Academic QPR by Race/Ethnic Group	118
Table B-38.	USNA Cumulative Academic QPR by Race/Ethnic Group ANOVA	118
Table C-1.	Primary Model Variables Entered/Removed	119
Table C-2.	Primary Model Summary.....	119
Table C-3.	Primary Model Analysis of Variance (ANOVA)	120
Table C-4.	Primary Model Coefficients.....	120
Table C-5.	Secondary Model Variables Entered/Removed	121
Table C-6.	Secondary Model Summary.....	121
Table C-7.	Secondary Model Analysis of Variance (ANOVA)	122
Table C-8.	Secondary Model Coefficients.....	122

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I. INTRODUCTION

A. BACKGROUND

The Naval Academy is the largest single institution that provides qualified individuals for commissioning in the Marine Corps. Other programs commission more individuals each year, but do so from a large number of schools and instructional programs. These other commissioning sources include the Naval Reserve Officers Training Corps (NROTC), Marine Enlisted Commissioning Education Program (MECEP), The Platoon Leader's Course (PLC), the Officer Candidate Course (OCC), the Enlisted Commissioning Program (ECP), the Meritorious Commissioning Program (MCP), and the Direct Commissioning Program (DCP).

The Marine Corps has a long-standing tie with the Naval Academy, dating back to the Academy's founding in 1845. Although this is at times an adversarial relationship, agreements between the Navy and Marine Corps provide for no more than 16.6 percent of each graduating class to accept commissions in the Marine Corps. The Marine Corps requested a change to this agreement, seeking up to 22 percent of each class, but this initiative awaits final approval. Acceptance of additional graduates from the Naval Academy theoretically provides the Marine Corps with quality officers, reducing the accession requirements imposed on other commissioning sources.

Academy graduates, like all other newly commissioned Marine lieutenants, report to The Basic School (TBS) at Quantico, Virginia to attend the Basic Officer's Course (BOC). BOC is an intensive six-month training curriculum that provides Marine Officers with training common to all Marines and prepares them for follow-on training at their respective military occupational specialty (MOS) schools. The mission of The Basic School is:

To educate newly commissioned or appointed officers in the high standards of professional knowledge, esprit-de-corps, and leadership required to prepare them for duty as a company grade officer in the operating forces, with particular emphasis on the duties, responsibilities and warfighting skills required of a rifle platoon commander (TBS website, 2002).

The Basic School's emphasis on the duties and responsibilities of a rifle platoon commander provides all officers, regardless of MOS, common and consistent training. While at The Basic School, students receive evaluations in military skills events, academics and most importantly, in leadership. These elements combine to provide the student's overall grade average and standing. As The Basic School's "Polished Steel" video outlines, the student's overall standing, combined with the needs of the Marine Corps and the officer's desires is the basis for his or her MOS assignment (TBS website, 2002). Additionally, the student's ranking at The Basic School provides his or her initial lineal standing within the Marine Corps. This initial lineal standing remains relatively unchanged through the officer's selection to the grade of captain.

Navy and Marine Corps leadership continues to refine training programs while searching for the mix that best fits the unique training needs of the Naval Academy while preparing midshipmen for success at their follow-on schools. During the last 20 years, Marine-specific training and selection programs have changed at the Naval Academy. These changes influenced Naval Academy graduate performance at The Basic School. This study focuses on the effect of the varying Marine-specific training programs for Naval Academy Midshipmen on the performance of Naval Academy graduates at The Basic School.

B. PURPOSE

This study compares the performance of Naval Academy graduates at The Basic School as a function of the different Marine-specific summer training programs that were required of Naval Academy graduates over time. The key research question is to determine whether attendance at the Officer Candidates School (OCS) "Bulldog" program, required for the Naval Academy Classes of 1989 to 1992, resulted in better performance of USNA graduates at The Basic School. The model accounts for differences and changes in other key determinants throughout the period under study.

C. RESEARCH QUESTIONS

1. Which training program best prepared Naval Academy Midshipmen for success at The Basic School?
2. What years provided the best overall performance of Naval Academy graduates at The Basic School?
3. What factors at the Naval Academy are associated with strong performance at The Basic School?
4. How can performance of future Naval Academy graduates at The Basic School be improved?

D. BENEFITS OF STUDY

This study will examine the performance of Naval Academy graduates at The Basic School and will determine which specific training programs most enhanced graduates' performance.

E. SCOPE AND METHODOLOGY

This study analyzes Naval Academy graduate performance at The Basic School using data on graduates from the Naval Academy classes of 1988 to 1999. The study will include a review of Marine-specific training programs that have been used at the Naval Academy since 1980, a review of the Naval Academy's warfare selection process, evaluation of Naval Academy graduate performance at The Basic School, and an analysis of which training programs were associated with success at The Basic School.

F. ORGANIZATION OF STUDY

Chapter II provides an overview of Marine officer commissioning programs and the training associated with each of the programs. Chapter II also provides an overview of the mission and goals of The Basic School and Officer Candidates School. Chapter III

reviews the Marine Corps programs used at the Naval Academy and includes an overview of exposure programs and the Marine-specific training programs used throughout the period studied. Chapter IV is a review of a Center for Naval Analyses study that provides the background for the analysis procedures used in this study. Chapter V describes the data used in this study, the theoretical model, the statistical analysis methodology, and the anticipated results. Chapter V also includes the empirical analysis of the dataset. Chapter VI discusses the results of the regression analysis. Chapter VII concludes the study with a discussion of the analysis results as well as recommendations to enhance the performance of Naval Academy graduates at The Basic School.

II. MARINE OFFICER COMMISSIONING AND TRAINING PROGRAMS

A. INTRODUCTION

This chapter begins with an examination of Marine officer commissioning options and commissioning sources. The first section describes the aviation, ground and law commissioning options as well as the school sequence following commissioning. The second section covers the commissioning programs available to candidates and reviews the Marine officer commissioning sources, providing an overview of each program, the eligibility requirements and the training sequence leading to commissioning. Figures in each subsection provide a road map of the training and commissioning sequence in each program. An overview of Marine Officer Candidates School describes its purpose and the individual characteristics that the program values in its applicants. A review of The Basic School's mission, training goals, preparation areas and evaluation process provides background on the training and development process for Marine officers.

B. MARINE OFFICER COMMISSIONING OPTIONS

1. Ground Option

Candidates entering the Marine Corps that will compete for ground Military Occupational Specialties (MOS) receive the Basic Officer MOS (9901) upon commissioning. These officers are assigned to applicable ground MOS's in accordance with their performance, desires and the "needs of the Marine Corps" during their initial officer training at The Basic School in Quantico, Virginia.

2. Aviation Option

The Marine Corps guarantees those commissioned through the aviation option the opportunity to attend flight training after successfully completing training at The Basic School. Candidates entering the Marine Corps through the aviation option receive the Student Naval Aviator MOS (7599) or the Student Naval Flight Officer MOS (7580)

dependent upon program availability and the applicant's qualifications. Officers report to The Basic School following commissioning for initial officer training. Following training at The Basic School, they report to Pensacola, Florida for Aviation Pre-Flight Indoctrination (API) followed by primary flight training at Naval Air Station Whiting in Milton, Florida or Naval Air Station Corpus Christi, Texas.

3. Law Option

Candidates entering the Marine Corps through The Marine Corps' Law Programs receive the Student Judge Advocates MOS (4401) at commissioning. After successful completion of training at The Basic School, these officers report to Naval Justice in Newport, Rhode Island to learn procedures and terms of the Uniform Code of Military Justice. Following Naval Justice School, officers receive the Judge Advocate MOS (4402) and orders to their first duty station.

C. MARINE OFFICER COMMISSIONING SOURCES

1. Naval Academy

a. Overview

The mission of the Naval Academy is:

"To develop midshipmen morally, mentally and physically and to imbue them with the highest ideals of duty, honor and loyalty in order to provide graduates who are dedicated to a career of naval service and have potential for future development in mind and character to assume the highest responsibilities of command, citizenship and government" (United States Naval Academy, 2000, p. 10).

The Naval Academy serves as the undergraduate college for the Navy and prepares young men and women to become professional officers in the United States Navy and Marine Corps. The curriculum is a four-year undergraduate course of study with emphasis on professional development that provides a Bachelor of Science degree in any of 18 major fields of study and culminates with commissioning in the Navy or Marine Corps (United States Naval Academy, 2000, pp. 9-10). Naval Academy graduates incur a minimum commitment of five years of active service upon

commissioning and may select from ground or aviation commissioning options. See Figure 1 for an overview of the Naval Academy Accession Sequence as of FY 2002.

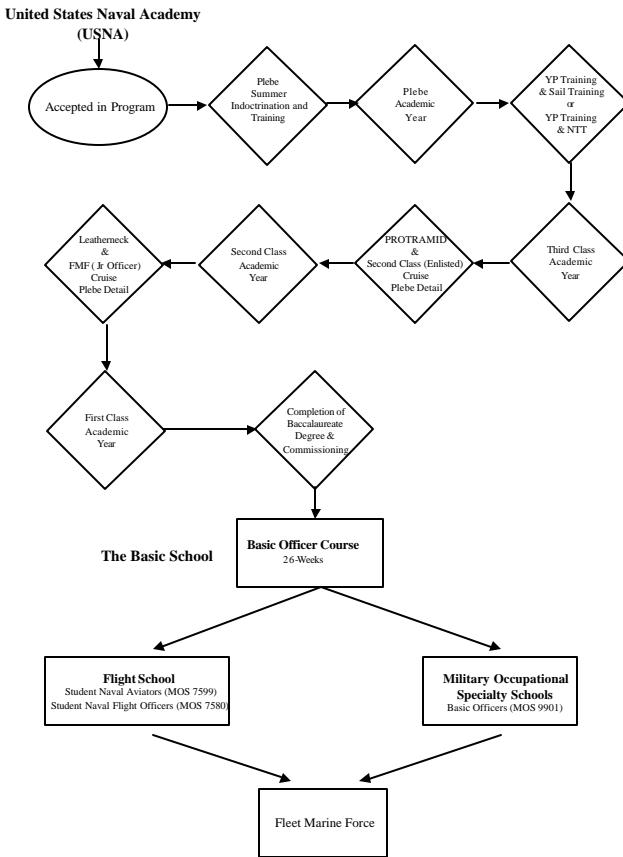


Figure 1. Naval Academy Accession Sequence (FY 2002).

b. Eligibility Requirements

Naval Academy applicants must be U.S. Citizens, with the exception of limited quotas for international midshipmen specifically authorized by Congress. Candidates must be between the ages of 17 and 23 during the summer they enter the Academy and must be unmarried, not pregnant, and have no incurred obligations of parenthood. Additional qualifications include being scholastically qualified, being medically qualified, passing the Naval Academy's Physical Aptitude Examination and receiving an official nomination from one of several sources (United States Naval Academy, 2000, p. 19). Annually, 170 appointments are available to regular and reserve Navy and Marine Corps enlisted personnel. The Navy and Marine Corps publishes

application procedures, qualifications and deadlines each year and solicits Academy applications from the active duty enlisted ranks. The Academy may reserve up to 65 midshipmen slots for children of military personnel who were killed in action; died from wounds, injuries or disease while on active duty; sustained 100 percent disability from such wounds, injuries or disease, as certified by the Department of Veterans Affairs; or who are currently prisoners of war or missing in action. Additionally, children of Medal of Honor Recipients who are fully qualified for admission are automatically appointed (United States Naval Academy, 2000, p. 23).

The Naval Academy seeks well-rounded applicants who have potential for developing into leaders of the Navy and Marine Corps. Individuals demonstrating leadership potential and the ability to manage academics, athletics, club participation, part-time employment and the competing demands of community or service related commitments are considered to be stronger candidates for selection by the Naval Academy admissions board (United States Naval Academy, 2000, pp. 19).

The academic qualifications for admission to the Naval Academy are demanding. To be competitive for admission, applicants should have four years of math including geometry, algebra, trigonometry, and calculus, if available at their schools. Science preparation should include one year each of chemistry and physics, with laboratory work, if possible. Additionally, competitive applicants complete four years of English, two years of foreign language, and one year each of U.S. history and European world history (United States Naval Academy, 2000, p. 19).

The Naval Academy uses the verbal and math scores from either the Scholastic Assessment Test (SAT) or the American College Test (ACT) for admission purposes (United States Naval Academy, 2000, p. 20). Table 1 contains the college admission test scores for a recent class at the Naval Academy. The maximum score for each section of the SAT-I is 800 and the maximum score in each section of the ACT is 36.

Table 1. Scholastic Assessment Test I (SAT-I) and American College Testing (ACT) Scores from a Recent Naval Academy Entering Class.

Score Range SAT-I (ACT)	Verbal	Math
> 700 (31-36)	20%	34%
600-699 (26-30)	54%	52%
<600 (<26)	26%	14%

Source: United States Naval Academy, 2000, p. 12

c. Training

Academic course load at the Naval Academy consists of a minimum of 15 credit hours each semester, with most midshipmen carrying 18-20 hours per semester. These totals do not include the credit hours for required physical education classes. In addition to the courses required for an individual's academic major, each year consists of two or more professional core courses in such subjects as naval science, leadership, electricity, tactics and Naval Law. Further, midshipmen take a physical education class during each semester and are able to choose from electives during the second semester of their second class (junior) and both semesters of their first class (senior) years.

Training at the Naval Academy begins with a seven-week indoctrination and training program called Plebe Summer. The purpose of Plebe Summer is to turn civilians into midshipmen, prepare them for integration into the Brigade of Midshipmen, and ready them for the start of the academic year in the fall. Normal training days begin with an hour of physical training as the sun rises and end well after dark. Plebe summer training teaches and reinforces self-discipline, teamwork, organization, prioritization and the ability to think on one's feet. Individuals improve their physical conditioning, develop their ability to think clearly under stress, and learn to react quickly to the unexpected. Plebe summer introduces the basics of seamanship, navigation, boat handling as well as small arms marksmanship and safety. Individuals begin the four-year process of refining their leadership skills during plebe summer (United States Naval Academy, 2000, p. 42).

Between the fourth class (freshman) and third class (sophomore) years (third-class summer) are three weeks of hands-on training at sea aboard the Naval

Academy's Yard Patrol craft. Follow-on training includes an additional three weeks at sea aboard the Naval Academy's 44-foot sailing sloops or participation in Naval Tactical Training. Naval Tactical Training consists of one week of simulated Sea, Air and Land (SEAL) Team operations at the Naval Academy, one week of Marine Corps small unit tactics, and a one-week introduction to the joint military arena (United States Naval Academy, 2000, p. 65).

Between third class (sophomore) and second class (junior) years (second-class summer), midshipmen are introduced to the major warfare communities in the Navy and Marine Corps. During this summer, midshipmen may elect to participate in Professional Training of Midshipmen (PROTRAMID) where they have the opportunity to fly Navy aircraft at Pensacola, Florida, dive in a nuclear-powered submarine off the coast of Florida and experience small unit tactics, patrolling and attacks with the Marines in Quantico, Virginia. Midshipmen also complete their second-class cruise by training on Navy ships and submarines around the world. During this four-week training period, midshipmen are part of the crew and have the opportunity to put into practical use the theory and techniques learned in their naval science classes at the Naval Academy. This training provides midshipmen with experience in the daily routine of the Navy at sea. While assigned to a Petty Officer running mate, they also have the opportunity to learn and appreciate the talents, responsibilities and perspectives of the enlisted sailors and Marines they will soon lead as officers (United States Naval Academy, 2000, p. 65). A select group of midshipmen have the opportunity to serve as squad leaders during the plebe summer training of the incoming plebe class.

Training between second-class (junior) and first-class (senior) years (first - class summer) provides midshipmen with the opportunity to practice leadership and experience life as a junior officer. Depending on career interests and qualifications, midshipmen once again train with Navy and Marine operational units. Midshipmen join surface warships, submarines, aircraft carriers and aviation squadrons for summer training. During this training period they serve with a junior officer to get a feel for the duties and responsibilities that await them immediately following graduation. Marine Corps hopefuls are strongly encouraged to attend the Naval Academy's 4-week Leatherneck Training Program conducted by the Academy staff at The Basic School in

Quantico, Virginia. Leatherneck provides Naval Academy Midshipmen with the field skills, tactical training and background that counterparts from other commissioning sources receive through the various courses at Officer Candidates School. It helps prepare Naval Academy graduates for follow-on training at The Basic School after graduation. At the completion of Leatherneck, midshipmen have the option of a four-week tour with a Fleet Marine Force or Marine Air Wing unit. The Fleet Marine Force tour, like the ship, submarine and aviation tours noted earlier, provides aspiring Marines the chance to experience the responsibility and opportunities that Marine Second Lieutenants enjoy (United States Naval Academy, 2000, p. 65). A select group of midshipmen also have the opportunity to serve as the officers responsible for directing and evaluating training during plebe summer for the incoming class.

2. Naval Reserve Officer Training Corps (NROTC) Marine Option

a. Overview

The mission of the Naval Reserve Officer Training Corps is to develop participants morally, mentally, and physically, and to instill in them the highest ideals of honor, courage, and commitment. The NROTC Marine Option program educates and trains qualified men and women for careers as commissioned officers in the United States Marine Corps. Marine Option NROTC units are located at selected colleges and universities throughout the United States. Scholarship selectees receive tuition assistance, books and uniform stipends. Scholarship participants also incur a four-year service obligation to the Marine Corps after commissioning (Marine Option NROTC Website, 2002). Non-scholarship participants do not incur a service obligation and may elect not to accept their commissions at the completion of the program.

NROTC provides candidates with ground and aviation commissioning options. Participants who complete the required training and fulfill the requirements for their baccalaureate degrees receive a commission as a Second Lieutenant in the United States Marine Corps Reserve. Active duty Marines selected for NROTC participation are released to the Inactive Ready Reserve (IRR) and do not receive their enlisted pay and allowances for the duration of their participation in the NROTC Program. The accession

goal for the program is 225 annually (Marine Option NROTC Website, 2002). See Figure 2 for an overview of Naval Reserve Officer Training Corps Accession Sequence.

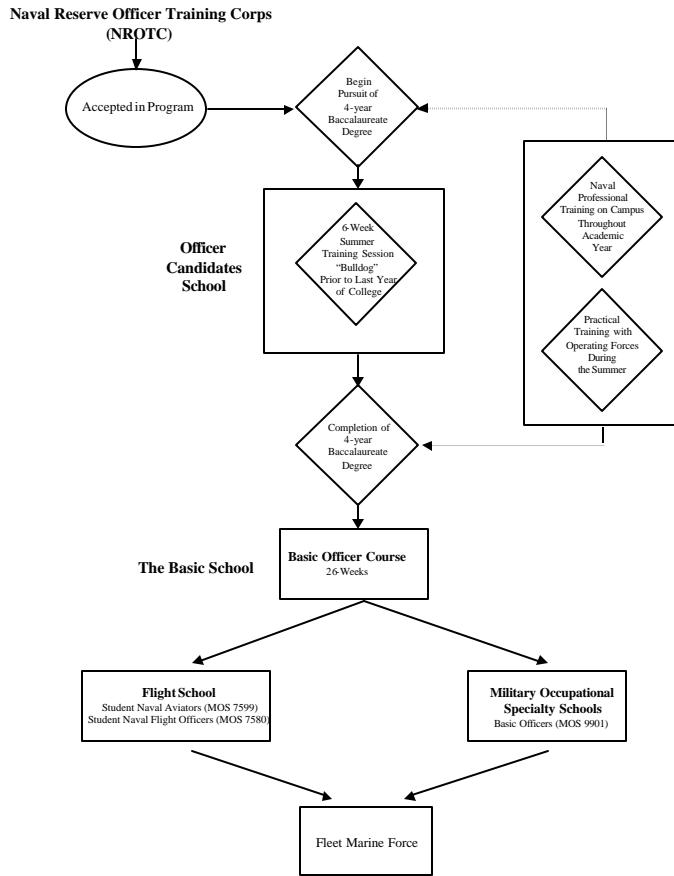


Figure 2. Naval Reserve Officer Training Corps (Marine Option) Accession Sequence (FY 2002).

b. Eligibility Requirements

NROTC is open to active duty Marines and undergraduate college-age students. The Marine Corps conducts two selection boards per year, one in November and the other in February. Applicants must be between 17 and 23 years old during their first year of college and not older than 27 years old at graduation and commissioning. Candidates with active service experience are eligible for age waivers up to age 30 at commissioning. Applicants must be high school graduates or have an equivalency certificate by fall of the year they enter the program and must have a minimum composite

score of 1000 on the Scholastic Assessment Test or a composite score of 45 on the American College Test (Marine Option NROTC Website, 2002).

c. Training

Individuals accepted for the program receive appointments as Midshipmen in the United States Navy and train with their ROTC unit throughout the academic year. Supervision of training and instruction is the responsibility of the Head of the Department of Naval Science or Professor of Naval Science and the Marine Officer Instructor (MOIs) of the college or university's ROTC unit.

Midshipmen normally wear uniforms to class at least one day each week and attend naval science classes focusing on areas such as leadership, navigation, drill and ceremonies, in addition to their undergraduate course load. Training with Navy and Marine Corps operational forces occurs during the summers between academic years and gives midshipmen practical experience in the subjects learned during naval science classes. Summer training also broadens their understanding of the Navy and Marine Corps.

Marine Option Midshipmen attend a six-week screening and evaluation course at Officer Candidates School known as the "Bulldog" program. The Bulldog program is the shortest screening and evaluation program conducted by Officer Candidates School. The Bulldog course is shorter than other commissioning programs because participants receive basic military training as well as detailed screening and evaluation during training with their ROTC units throughout the academic year and during the summer training periods.

Upon the successful completion of degree requirements, the Bulldog program and with the recommendation of the Commanding Officer of the ROTC unit, participants receive commissions as Second Lieutenants in the United States Marine Corps Reserve. Officers then receive orders to The Basic School for initial officer training.

3. Platoon Leaders Class (PLC)

a. Overview

The Platoon Leaders Class (PLC) program provides applicants with ground, aviation and law commissioning options. The PLC program is an undergraduate commissioning program that provides college students attending accredited colleges or universities a commissioning avenue without interrupting their courses of academic study. Participants in the PLC program complete training during the summer and are eligible for tuition assistance during pursuit of their degrees. Upon successful completion of the program's requirements, participants receive a commission as a Second Lieutenant in the United States Marine Corps Reserve (MCO1100.73B, 1989, p. 2-5). See figure 3 for an overview of Platoon Leaders Class Accession Sequence.

b. Eligibility Requirements

Applicants for PLC Ground and Aviation Options must be regularly enrolled, full-time students at a regionally accredited college or university and must have completed one academic term of a normal schedule of courses with a GPA of at least a C (2.0 on a 4.0 scale). A normal schedule of courses is a minimum of 12-semester or 12-quarter hours in a single term. In addition, the cumulative GPA and last term GPA must be at least a C.

Applicants for the PLC Law Program must be college seniors accepted for enrollment in a law degree granting institution accredited by the American Bar Association. Additionally, first or second year law students currently enrolled in an American Bar Association accredited law degree granting institution are eligible to apply for the PLC Law Program. Members of the PLC Ground or Aviation programs may transfer to the PLC Law Program if they are in their senior year of college and have been accepted at an accredited law school (MCO1100.73B, 1989, p. 2-5).

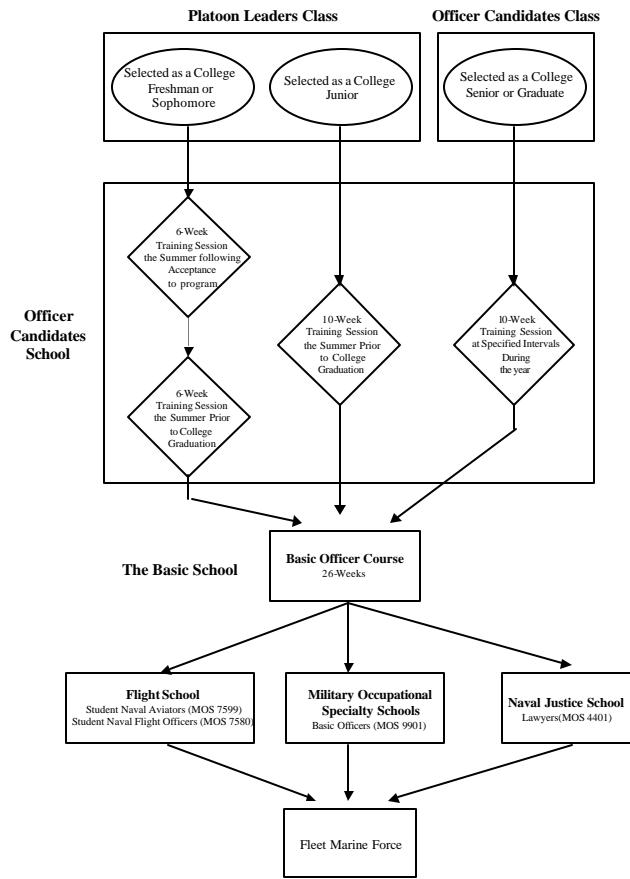


Figure 3. Platoon Leader Class and Officer Candidate Class Accession Sequence (FY 2002).

c. Training

Candidates enrolling in the PLC program as college freshmen or sophomores attend two separate summer training sessions at Officer Candidates School in Quantico, Virginia. The first session, the PLC Junior Course, occurs during the summer after enrolling in the program. The second session, the PLC Senior Course, occurs during the summer immediately preceding the school year in which they receive their degree. Individuals enrolling in the program after their junior year in college attend a single ten-week session, the PLC Combined Course (MCO1100.73B, 1989, p. 2-6).

4. Officer Candidate Course (OCC)

a. Overview

The Officer Candidate Class (OCC) program includes ground, aviation, and law commissioning options. The OCC program is a graduate level commissioning program that provides college seniors or graduates of accredited colleges, universities or law schools an avenue for commissioning as a Marine officer. Upon successful completion of Officer Candidates School, participants receive a commission as a Second Lieutenant in the United States Marine Corps Reserve (MCO1100.73B, 1989, p. 2-9). Figure 3 above provides an overview of Officer Candidate Course Accession Sequence.

b. Eligibility Requirements

Applicants for the OCC Ground or OCC Aviation Options must be graduates of a regionally accredited baccalaureate granting institution. College seniors in good standing at accredited institutions are eligible to apply for the program; however, they must carry an academic course load enabling them to complete the degree requirements for a baccalaureate degree prior to the convening date of the Officer Candidate Class for which they are applying. Applicants with a baccalaureate degree from foreign colleges or universities must be eligible for graduate studies at a regionally accredited college or university.

Applicants for the OCC Law Program must be in their final year or have graduated from an American Bar Association accredited law school. Prior to attending Officer Candidates School, applicants must graduate from an accredited law school and pass the bar of a Federal court or the highest court of a state or the District of Columbia (MCO1100.73B, 1989, p. 2-10).

c. Training

Participants in the OCC program attend a single ten-week session at Officer Candidates School at Quantico, Virginia (MCO1100.73B, 1989, p. 2-10). Following training at Officer Candidates School, the newly commissioned officers receive orders to active duty and report to The Basic School for initial officer training.

5. Marine Corps Enlisted Commissioning Education Program (MECEP)

a. *Overview*

The Marine Enlisted Commissioning Education Program (MECEP) provides an avenue to pursue college education and a ground assignable commission as an officer of Marines to enlisted Marines who demonstrate outstanding leadership skills and potential. Marines successfully completing the program receive a baccalaureate degree and a commission as a Second Lieutenant in the United States Marine Corps Reserve (MECEP Web Site, 2002). Marine Corps Recruiting Command convenes a selection board once each year in the spring or fall to select participants for the program. The board selects the best qualified Marines on the basis of their records, including the substance of the application, the interview board report, recommendation of the commanding officer, previous and current academic achievements, past performance as a Marine and future potential to become a Marine officer (MCO 1560.15L, 1994, p. 7). Figure 4 provides an overview of the Marine Enlisted Commissioning Education Program Accession Sequence.

b. *Eligibility Requirements*

MECEP is open to all active duty Marines and Marines in the Active Reserve meeting the physical standards and eligibility requirements. Personnel applying for MECEP must not have previously failed to complete any military officer program. Applicants must be a Corporal (E-4) or above and be between 20 and 26 years old. High school graduates must have been in the upper half of their class. Non-high school graduates must have completed at least three years of high school and successfully passed the GED with a minimum score of 75 percent. Applicants must have a minimum combined Scholastic Assessment Test (SAT) score of 1000 with a minimum verbal score of 400 (MCO 156015L, 1994, pp. 1-2).

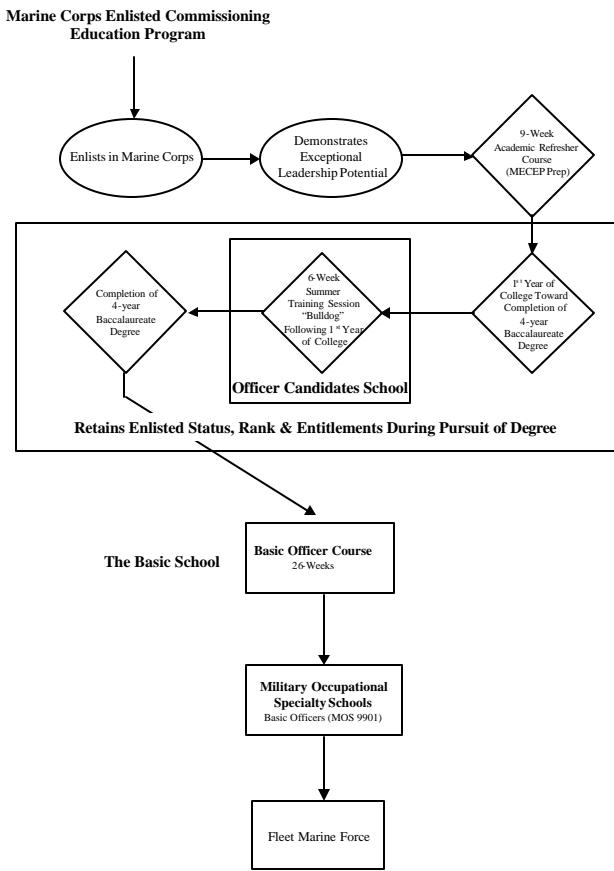


Figure 4. Marine Corps Enlisted Commissioning Education Program Accession Sequence (FY 2002).

c. Training

Once selected to participate in MECEP, selectees report to the MECEP Preparatory School at the Marine Corps Recruit Depot in San Diego, California. While at the MECEP Preparatory School, students complete nine weeks of refresher instruction in mathematics, English, physics, chemistry, or physical science as appropriate to their discipline of study to prepare them for pursuit of a baccalaureate degree. Participants receive full pay and allowances while participating in MECEP and remain eligible for promotion within their MOS. Although the cost of tuition, books, housing and living expenses are the responsibility of the student, Marines are encouraged to take advantage of the G.I. Bill, Veterans Education Assistance Program and low interest student loans. MECEP students maintain a full time status while in the program and attend summer

school when not at Officer Candidates School. Participants complete Officer Candidates School following their first year in the program (MCBUL 1560, 2001, pp. 1-2). MECEP participants attend the same six-week "Bulldog" program at Officer Candidates School that NROTC midshipmen attend. During assignment to MECEP, students participate in training with the school's NROTC unit and report directly to the NROTC unit's Marine Officer Instructor (MOI). Upon successful completion of degree requirements, Officer Candidates School and with the recommendation of the Commanding Officer of the ROTC unit, participants receive a commission as a Second Lieutenant in the Marine Corps Reserve. Officers then receive orders to The Basic School for initial officer training.

6. Enlisted Commissioning Program (ECP)

a. Overview

The Enlisted Commissioning Program provides qualified enlisted Marines in the Regular Marine Corps and in the Marine Corps Active Reserve the opportunity to apply for assignment to Officer Candidates School with subsequent appointment to the rank of Second Lieutenant in the United States Marine Corps Reserve as an unrestricted officer. This program, like PLC and OCC, provides aviation and ground commissioning options to qualified applicants. Selection boards convene a maximum of three times per year (MCO 1040.43A, 2000, pp. 1-2). Figure 5 provides an overview of the Enlisted Commissioning Program Accession Sequence.

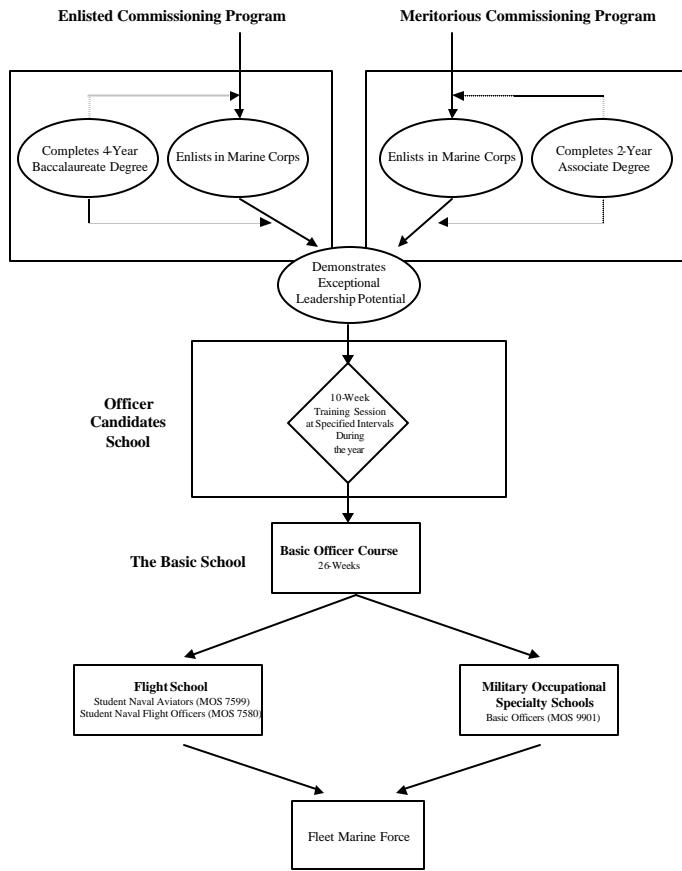


Figure 5. Enlisted Commissioning Program and Meritorious Commissioning Program Accession Sequence (FY 2002).

b. Eligibility Requirements

Personnel applying for the Enlisted Commissioning Program must complete a minimum of one year of active Marine Corps service and have a minimum of one year remaining on their enlistment at the date of application. Candidates must not have previously failed to complete any military officer program. Additionally, applicants applying for the aviation option must not have previously failed any military flight-training program. Applicants must possess a minimum combined Math and Verbal score of 1000 on the Scholastic Assessment Test (SAT), a minimum combined Math and English score of 45 on the American College Test (ACT), or a minimum score of 115 on the Electrical Composite (EL) of the Armed Services Vocational Aptitude Battery (ASVAB). Applicants must possess a high school diploma or a GED certificate issued

by a state department of education and must have satisfactorily earned a baccalaureate level degree from a regionally accredited college or university prior to applying for the program. Candidates for the ground option must be between 21 and 30 years of age on the date of appointment to commissioned grade. Aviation candidates must be between 21 and 27.5 years old on the date of appointment to commissioned grade (MCO 1040.43A, 2000, p. 3-4).

c. Training

Marines meeting the program criteria selected for participation in the program receive orders from the Commandant of the Marine Corps to a specified 10-week Officer Candidate Class at Officer Candidates School. Candidates who successfully complete OCS and receive an endorsement from the Commanding General, Marine Corps Combat Development Command receive a commission as a Second Lieutenant in the United States Marine Corps Reserve. Newly appointed officers then report to The Basic School for initial officer training (MCO 1040.43A, 2000, p. 10).

7. Meritorious Commissioning Program (MCP)

a. Overview

The Meritorious Commissioning Program provides applicants with ground and aviation commissioning options. The Meritorious Commissioning Program allows commanding officers to nominate highly qualified enlisted Marines in the Regular Marine Corps and the Active Reserve Program, who do not possess a baccalaureate degree and who have demonstrated exceptional leadership potential, for assignment to Officer Candidates School and subsequent commissioning in the Marine Corps Reserve. Selection boards convene a maximum of three times per year (MCO 1040.43A, 2000, pp. 1-4). Figure 5 provides an overview of the Enlisted Commissioning Program Accession Sequence.

b. Eligibility Requirements

Personnel applying for the Meritorious Commissioning Program must complete a minimum of one-year active Marine Corps service and have a minimum of one year remaining on their enlistment at the date of application. Candidates must have

an associate level degree or have completed 75 semester hours or more of unduplicated college work at a regionally accredited college or university. Non-traditional credit for courses such Marine Corps Institute Correspondence Courses and Military Occupational Specialty Schools do not count toward the 75 semester hour minimum unless they were included as part of the associate degree. Candidates must not have previously failed to complete any military officer program. Additionally, applicants applying for the aviation option must not have previously failed any military flight-training program. Applicants must possess a minimum combined Math and Verbal score of 1000 on the Scholastic Assessment Test (SAT), a minimum combined Math and English score of 45 on the American College Test (ACT), or a minimum score of 115 on the Electrical Composite (EL) of the ASVAB. Applicants must possess a high school diploma or a GED certificate issued by a state department of education. Candidates for the ground option must be between 21 and 30 years of age on the date of appointment to commissioned grade. Aviation candidates must be between 21 and 27.5 years old on the date of appointment to commissioned grade. Enlisted Marines with a 4-year degree are not eligible for the Meritorious Commissioning Program and should consider Marine Corps Enlisted Commissioning Program (MCO 1040.43A, 2000, p. 3-4).

c. Training

Marines meeting the program criteria selected for participation in the program receive orders from the Commandant of the Marine Corps to a specified 10-week Officer Candidate Class at Officer Candidates School. Candidates who successfully complete OCS and who are recommended by the Commanding General, Marine Corps Combat Development Command are appointed to the grade of Second Lieutenant in the United States Marine Corps Reserve. Newly appointed officers report The Basic School for initial officer training (MCO 1040.43A, 2000, p. 10). Officers commissioned through the Meritorious Commissioning Program must pursue their 4-year baccalaureate degree during their initial service obligation to be competitive for future promotion (MCO 1040.43A, 2000, p. 3).

8. Direct Commissioning Program (DCP)

a. Overview

The Direct Commissioning Program is a highly selective program that provides applicants with ground commissioning options. The Direct Commissioning Program allows exceptionally qualified enlisted Marines in the Selected Marine Corps Reserve and the Active Reserve to apply for appointment as an unrestricted commissioned officer in the Selected Marine Corps Reserve (MCO 1040R.10K, 2000, pp. 1-2). The intent of the Direct Commissioning Program is to fill specific non-active duty billets in Selected Marine Corps Reserve units (MCO 1040R.10K, 2000, p. 18). Figure 6 provides an overview of the Direct Commissioning Program Accession Sequence.

b. Eligibility Requirements

Personnel applying for the Direct Commissioning Program must be citizens of the United States and must be in good standing within the Selected Marine Corps Reserve or Active Reserve. Applicants must be a Corporal (E-4) or above and have a record of excellent to outstanding service. Warrant officers and chief warrant officers are not eligible for the Direct Commissioning Program. Candidates must be between 21 and 30 years old on the date of commissioning. Headquarters Marine Corps considers age waivers for exceptionally qualified individuals up to 35 years old. Applicants must not have previously failed to complete any military officer program for unsatisfactory performance. Participants dropped on request as well as those who experience injuries in any officer program receive consideration on a case-by-case basis. Applicants must have a minimum of 36 months continuous service in the Selected Marine Corps Reserve or be currently serving in the Selected Marine Corps Reserve after three or more years of active duty. Applicants must have a four-year baccalaureate degree from a regionally accredited college or university. Candidates must possess a minimum combined Math and Verbal score of 1000 on the Scholastic Assessment Test (SAT), a minimum combined Math and English score of 45 on the American College Test (ACT), or an minimum score of 115 on the Electrical Composite (EL) of the ASVAB (MCO 1040R.10K, 2000, pp. 2-4).

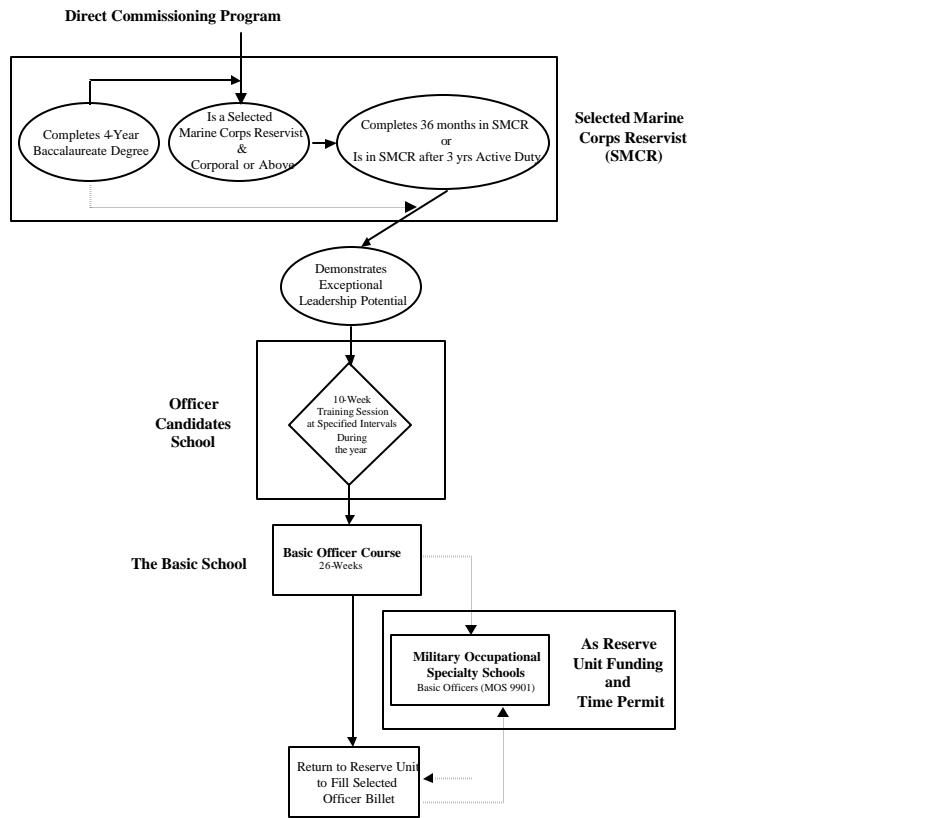


Figure 6. Direct Commissioning Program Accession Sequence (FY 2002).

c. Training

Marines selected for the program receive active duty for training orders from the Commandant of the Marine Corps to a specified 10-week Officer Candidate Class at Officer Candidates School. Individuals reporting to Officer Candidates School must complete at least seven weeks of training unless disenrolled sooner, before voluntary requests for disenrollment are considered. Candidates who successfully complete OCS receive a commission as a Second Lieutenant in the United States Marine Corps Reserve. The newly appointed officers report to The Basic School for initial officer training (MCO 1040R.10K, 2000, pp. 10-11). Following training at The Basic School, officers may receive orders to MOS schools appropriate for the billets assigned by their reserve units. At the conclusion of active duty training, officers commissioned

through the Direct Commissioning Program return to reserve status in the Selected Marine Corps Reserve. Officers must participate in 48 scheduled Inactive Duty Training (IDT) periods and the first three scheduled Annual Training (AT) periods during the first three years of commissioned service. Program participants also agree not to resign their commissions in the Marine Corps Reserve during the first eight years of reserve service following commissioning (MCO 1040R.10K, 2000, pp. 17-18).

D. OFFICER CANDIDATES SCHOOL

1. Mission

The mission of Officer Candidates School is "to train, evaluate, and screen officer candidates to ensure that they possess the moral, intellectual, and physical qualities for commissioning and the leadership potential to serve successfully as company grade officers in the operating forces" (OCS Web Site, 2002).

2. Overview

Many refer to Officer Candidates School as the boot camp for officers. However, the goals of boot camp and OCS are very different. Boot camp produces a disciplined, basically trained and indoctrinated Marine that obeys, reacts and follows. Drill Instructors lead the recruits through all phases of training and will not give up on a recruit, even when the recruit has given up on himself. The objective is to get all recruits to meet training standards and move them on to more specialized military occupational specialty training. Officer Candidates School, on the other hand, as the mission outlines, screens and evaluates candidates and graduates those who possess the moral, intellectual, and physical qualities for commissioning as well as the leadership potential to serve successfully as company grade officers in the operating forces. Graduates of OCS exhibit the potential to think and lead under stress (Dunne, 2001, p. 44).

The major difference is that boot camp trains recruits and Officer Candidates School screens and evaluates officer candidates for potential. Officer candidates, unlike recruits, may DOR or drop on request after a specified period in the program. The rationale is that the Marine Corps does not want as its leaders individuals who are not able to motivate themselves or who do not want to complete the screening and evaluation

process. As Colonel Wesley Fox, a former Commanding Officer of Officer Candidates School and Medal of Honor Recipient, stated “We are not here to train...Our job is to evaluate and screen candidates to ensure they possess the leadership, moral and physical qualities needed for a commission in the Marine Corps” (Stark, 1990, p. 44). Colonel George Flynn, a recent Commanding Officer of Officer Candidates School said, “The [drill] Instructor’s job is to create chaos and confusion. The officer candidate’s job is to learn how to make decisions, even to lead under those conditions.” Marine Drill Instructors, supervised by a handful of officers, conduct the majority of the training and evaluation at Officer Candidates School. Colonel Flynn summed up the importance of selecting qualified candidates, “On graduation day, the candidates become Second Lieutenants, senior to the [Drill] Instructors. The [Drill] Instructors have a vested interest in choosing good leaders” (Kennedy, 2000, pp. 33-34).

E. THE BASIC SCHOOL (TBS)

1. Mission of The Basic School

All newly commissioned Marine Officers report to The Basic School (TBS) located at Marine Corps Base Quantico in Quantico, Virginia to attend The Basic Officer Course (BOC). The mission of The Basic Officer Course is “To educate newly commissioned officers in the high standards of professional knowledge, esprit de corps, and leadership required to be prepared for duty as a company grade officer in the Operating Forces, with particular emphasis on the duties, responsibilities, and warfighting skills required of a rifle platoon commander” (Basic School Order P5000.2D, 2001, p. 1-5). The program of instruction at TBS provides students with the basic knowledge required to successfully lead Marines and operate in the Fleet Marine Force.

2. Training Goals

TBS uses a building block approach to training. Students learn tactics, techniques, and procedures that build upon one another throughout the course. The officer students learn concepts and theory from instructors and guest speakers in the classroom environment. Following classroom instruction, students employ tactical concepts in small groups around a terrain model or sand table. Sand table exercises

provide student officers the opportunity to develop tactical proficiency and test their ability to employ tactical concepts before moving to the field environment for practical application. The sand table also allows students to develop a tactical plan and the associated combat order from the given scenario and receive feedback from instructors and peers. Varying solutions from each officer stimulates discussion amongst students and instructors and encourages interest in finding the best solution to a given problem. Finally, students move from the garrison-learning environment into the field to apply the lessons learned in class and around the sand table.

3. Critical Preparation Areas

TBS academic regulations outline the training focus as the “development of leaders who are morally sound and capable of both critical thinking and problem solving.” TBS strives to develop the officer student as a leader/commander, decision maker, communicator, warfighter/executor, and life-long learner (Basic School Order P5000.2D, 2001, p. 1-3).

a. Leader/Commander

The Basic School focuses on developing the skills and instincts required to lead Marines in combat. Development throughout the course of instruction instills in the students that officers are public figures accountable to their Marines and the public for high standards, professionalism, duty and morality (Basic School Order P5000.2D, 2001, p. 1-4). Students serve in varying tactical and garrison leadership billets during their training at TBS. Each of these opportunities allows the student to hone his or her skills while leading the toughest group, one’s peers. TBS staff members observe, guide and counsel students during each step of the development process.

b. Decision Maker

The Basic School strives to instill in its officers a bias for action and a willingness to make decisions. Officers learn to analyze situations, weigh the consequences of potential actions and act decisively (Basic School Order P5000.2D, 2001, p. 1-4). The ability to rapidly assess a given situation, formulate an appropriate course of action and take aggressive action is a vital skill that all Marine officers must

develop. Students also learn the critical aspect of accountability for their decisions and actions. Tactics, techniques and procedures taught throughout the course provide the foundation from which each officer progresses. Discussion groups, sand table exercises and practical application in the field provide the student the opportunity to develop the critical thinking skills necessary for success. Changing “enemy” situations during field problems allow instructors to reward aggressive action, quick thinking and proper application of techniques. Conversely, poor decisions also provide valuable lessons for the officers in training rather than under hostile fire.

c. Communicator

Unless conveyed clearly and coherently, even the best decisions have little meaning. Students learn techniques to “speak confidently, issue clear, meaningful orders and guidance, formulate a commander’s intent, write coherently, counsel effectively and critique meaningfully” (Basic School Order P5000.2D, 2001, p. 1-4). Instruction at TBS emphasizes concise and effective communication. Students receive feedback from instructors and staff on written work including their autobiography, peer performance assessments and combat or patrol orders developed for sand table and field exercises. Conveying a tactical plan through the verbal presentation of a combat order allows students to hone speaking and presentation skills as well as building confidence in their abilities. The Techniques of Military Instruction event, included in a student’s military skills average, requires students to develop and teach a simple class using the Marine Corps instruction techniques. This event provides students the opportunity to develop and refine both writing and speaking skills.

d. Warfighter/Executor

“The goal will be to develop competent combat leaders, grounded in basic infantry knowledge, and characterized by their sound judgment, bias for action, and excellence in execution” (Basic School Order P5000.2D, 2001, p. 1-4). Training at TBS provides students with the tools to be an effective combat leader. Students learn the Marine Corps Warfighting Doctrine outlined in Marine Corps Doctrinal Publication-1 (MCDP-1), Warfighting. Instruction emphasizes maneuver warfare, combined arms application and the associated tactics, techniques and procedures throughout the course. TBS academic regulations identify warfighter/executor preparation as “realistic, combat-

oriented training that allows students to hone field skills, apply tactical fundamentals, and experience first hand the nature of battle: “fog, friction, uncertainty, and fear” (Basic School Order P5000.2D, 2001, p. 1-4).

e. Life-long Learner

Training at The Basic School is the first step in every Marine Officer’s career. Instruction received during the Basic Officer Course provides an effective foundation for each officer’s future development. Students learn about the importance of professional development through avenues such as the Commandant of the Marine Corps’ Professional Reading List, professional journals, Marine Corps Institute correspondence courses and resident professional military education opportunities. Use of battle studies, current events and tactical decision games allow students to analyze the decisions made throughout history with the objective of stimulating interest in professional development. As the TBS academic regulations state, “A key goal throughout each course of instruction is to develop within each student a thirst for professional military education that continues throughout his/her career, regardless of duration” (Basic School Order P5000.2D, 2001, p. 1-4).

4. Evaluation of Officer Students

a. Overview

The Basic School Academic Regulations (2001, p. 5-3) outline the purpose of the student evaluation system as follows:

- It ensures that only individuals mastering course material graduate
- It helps the staff identify substandard performers to provide intervention and assistance with their training and preparation.
- It provides the basis for development and control of training, tracking performance trends and refining the program of instruction at TBS.
- It establishes a lineal standing of each Basic Officer Course graduating class for use by Headquarters Marine Corps in assigning initial lineal rank within the Marine Corps.

The Basic School evaluates student officers in leadership, military skills events, and academics. Leadership comprises 36 percent of a students overall standing with military skills and academics contributing 32 percent each. Students must achieve course mastery to graduate. In order to achieve course mastery, students must maintain a minimum overall course average of 75 percent with an average of 75 percent or greater in

each of the three evaluation categories. Students must pass every graded event or the appropriate retest of the event. Students failing any event receive a score of 60 percent or the original failing grade, whichever is higher, once they successfully pass the event's retest. Students cannot retest failed events more than two times without authorization of the Commanding Officer of The Basic School (Basic School Order P5000.2D, 2001, pp. 5-3-5-4).

b. Leadership

Formal leadership or command evaluations provide 36 percent of the student's overall grade and occur twice during the Basic Officer Course. The first command evaluation occurs during week 12 of training and accounts for 14 percent of a student's overall grade. The second command evaluation occurs during week 22 of training and accounts for 22 percent of the student's overall grade. Although grade assignment occurs at specified period during training, leadership evaluation is a continuous process by peers as well as company and instructional staff (Basic School Order P5000.2D, 2001, p. 5-4). Tactical and garrison leadership billets provide evaluation under varying conditions including the uncertainty or "fog of battle" provided during field training. A student's action or inaction during discussion groups, sand table exercises, battle studies, tactical decision games, additional/collateral duties, inspections, off duty conduct and day-to-day performance also provide insight into an officer's leadership abilities.

Leadership evaluations are the responsibility of the company staff. Staff platoon commanders maintain the closest relationship to the officer students and provide detailed counseling throughout the course. Assistant instructors that accompany the students during field problems counsel student billet holders at the conclusion of the tactical problem and provide feedback on the student's performance to the staff platoon commander. Assistant instructors also provide performance feedback during events such as sand table exercises, discussion groups, and so forth. Staff platoon commanders evaluate each officer based upon their observations as well as the feedback provided by assistant instructors and other staff members. Staff platoon commanders submit their grade recommendations to the company commander. The company commander assigns

final leadership grades based upon the input from his six staff platoon commanders. The Commanding Officer of The Basic School approves all formal leadership grades.

Staff platoon commander and peer rankings are combined to provide the company's overall leadership standing. Staff platoon commanders submit a top to bottom ranking of their platoons to the Testing Officer during the command evaluation process. Students provide rankings as well as a descriptive word picture for each of their peers. Students submit their rankings to the Testing Officer through a computer program concurrent with the staff platoon commander's rankings by rating their respective squads during the first command evaluation and their platoons during the second command evaluation. The Testing Officer determines each platoon's as well as the company's overall ranking by combining staff platoon commander and peer rankings at 90 percent and 10 percent, respectively. Staff platoon commanders apply a bell curve with a median grade of 85 percent bounded by a low score of 75 percent and a high score of 95 percent to the platoon lineal rankings to determine recommended leadership grades for the company commander. Staff platoon commanders provide justification for assignment of exceptional leadership scores, those above 95 percent or below 75 percent as necessary. The company commander has the authority to assign exceptional leadership grades based upon staff recommendation and his personal assessment or observation. Company commanders remove those individuals assigned exceptional leadership grades from the company's lineal standing before assigning leadership grades to the remainder of the company. The company commander assigns the remaining leadership grades with the bell curve described above (Basic School Order P5000.2D, 2001, p. E-7-E-11).

c. Military Skills

Military skills events comprise 32 percent of a student's overall average. Table 2 outlines the graded and weighted military skills events. Military skill events primarily evaluate each officer's warfighting skills and are normally a hands-on or practical application events. The 13th Commandant of the Marine Corps, General John A. Lejeune, outlined the relationship between officers and enlisted as follows:

The relation should in no sense be that of superior and inferior nor that of master and servant, but rather that of teacher and scholar [i.e. student]. In fact, it should partake of the nature of the relation between father and son,

to the extent that officers, especially commanding officers, are responsible for the physical, mental and moral welfare, as well as the discipline and military training of the young men under their command" (Estes, 1996, p. 4).

As General Lejeune indicated, officers must be masters of warfighting skills in order to have the ability to teach these critical skills to the Marines in his or her charge. "The purpose of the military skills evaluation system is to measure the proficiency of an officer student in these critical areas" (Basic School Order P5000.2D, 2001 p. 5-11). Multiplying each event's score by its weight and dividing by the total weights provides a student's military skills average. The weighting policy allows the Commanding Officer to emphasize the relative importance of selected events by weighting critical events more heavily. For example, an officer's proficiency with infantry battalion weapons and his or her ability to make tactical decisions are the most significant events and carry a weight twice that of any single military skills event.

Table 2. Graded Military Skills Events During The Basic Officer Course.

Event	Weight
Fitness Report Evaluation	2
Techniques of Military Instruction	2
Combat Orders Format Exam	1
Tactical Decision Making Exam	4
Night Navigation Final	1
Land Navigation Written Exam	2
Land Navigation Final	3
Weapons Practical Application	4
Rifle Qualification	2
Pistol Qualification	2
Communications Exam	2
Physical Fitness Test	1
Close Combat Evaluation	1
Endurance Course	2
Drill Evaluation	2
First Aid Written Evaluation	.5
First Aid Practical Application	.5

Source: Derived from Academic Regulations for The Basic School, 2001, p. D-1

d. Academics

Academic evaluations provide 32 percent of a student's overall average. Table 3 outlines the graded and weighted academic events in the Basic Officer Course. Academic events primarily evaluate each officer's understanding of doctrine, procedures, and concepts. Evaluation of these events normally occurs in the classroom environment through a written multiple choice or short answer examination. The significant weight of offense, defense, leadership, basic skills and the combined weight of the supporting arms exams indicate their relative importance as well as the course's focus on warfighting skills and proficiency.

Table 3. Graded Academic Events During The Basic Officer Course.

Event	Weight
Engineering/NBC/Aviation Exam	3
Defense Exam	4
Patrolling Written Exam	1.5
Patrolling Practical Evaluation	1.5
Offense Exam	4
Basic Skills Exam	4
Leadership and Administration Exam	4
Amphibious Operations Exam	3
Supporting Arms Written Exam	2
Supporting Arms Practical Evaluation	2
Military Law Exam	2
Writing Skills Exam	1

Source: Derived from Academic Regulations for The Basic School, 2001, p. C-1

F. CHAPTER SUMMARY

The review of the Marine officer commissioning and training programs provided a summary of the various programs that train, screen and evaluate officer candidates as well as the training and evaluation process for newly commissioned officers during the Basic Officer Course at The Basic School. The review also outlined some of the eligibility and training differences between cohorts entering the Marine Corps from the Naval Academy and other commissioning programs. The study now shifts to an overview of Marine Corps Programs used at the Naval Academy throughout the period studied.

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III. THE NAVAL ACADEMY AND MARINE CORPS PROGRAMS

A. INTRODUCTION

This chapter examines the Marine Corps training programs conducted at the Naval Academy during the period studied. The first section of this chapter, Marine Corps Orientation Programs, provides an overview of the varying summer training programs used by the Naval Academy to acquaint midshipmen with Marine Corps training and leadership. Programs under this heading consist of voluntary and mandatory training and include Professional Training for Midshipmen (PROTRAMID), Midshipmen Leadership Training (MLT) and Naval Tactical Training (NTT). The second section of this chapter, Marine Corps Preparation Training Programs, reviews the training programs employed by the Naval Academy to prepare aspiring midshipmen for service in the Marine Corps. A review of the Naval Academy's service selection and service assignment procedures describes the significant changes in that process beginning with the class of 1995, as well as the impact of the assignment policy on the quality of Marine Corps accessions.

B. MARINE CORPS EXPOSURE PROGRAMS

The Naval Academy employed three specific training programs over the last 20 years to expose midshipmen to Marine Corps capabilities, training and leadership. Training programs in this category include: Professional Training for Midshipmen (PROTRAMID), Naval Tactical Training (NTT) and Midshipmen Leadership Training (MLT). PROTRAMID and NTT are one-week elective training programs that now target second and third class midshipmen respectively and are still in use today. MLT was a mandatory program for all third class midshipmen that exposed them to three weeks of training and evaluation at Officer Candidates School.

1. Professional Training of Midshipmen (PROTRAMID)

Professional training for midshipmen (PROTRAMID) is an elective program conducted during second-class summer. Today's PROTRAMID evolved from a similar program known as "The Road Show" in the mid 1960's (Gannon, 2000, p. 139). It now consists of three weeks of training that provide midshipmen with an introduction to the

aviation, submarine and Marine Corps communities. Midshipmen get a one-week introduction to Naval Aviation at flight school in Pensacola, Florida where they have the opportunity to fly with instructors in Navy fixed wing and rotary wing training aircraft. They spend a week at Kings Bay, Georgia for their submarine orientation where they get underway on a nuclear submarine for a one (or more) day training cruise. Finally, midshipmen report to The Basic School in Quantico, Virginia for a one-week Marine Corps orientation. The Basic School's Academic Regulations describe the Marine segment of PROTRAMID as a one-week program that familiarizes midshipmen with the Marine Corps. Training focuses on the warfighting philosophy of the Marine Corps and exposing midshipmen to Marine Corps capabilities. It is the only exposure to Marine Corps doctrine, leadership and capabilities that many midshipmen receive since most accept commissions in the Navy (Basic School Order P5000.2D, 2001, p. 1-5).

An agreement between the President, Marine Corps University; Superintendent, United States Naval Academy; Commanding Officer, The Basic School and the Senior Marine, United States Naval Academy provides the mission and responsibility for the Marine segment of PROTRAMID. The mission of the PROTRAMID program is to "Introduce second-class midshipmen to the organization, roles and missions of the Marine Corps." Training at The Basic School introduces midshipmen to the knowledge and esprit shared by all Marines. Additional goals of the Marine segment of the program are to:

- Introduce midshipmen to the high standards of knowledge and professionalism required of all Marine officers.
- Expose midshipmen to the wide variety of Military Occupational Specialties available to Marine officers.
- Enable midshipmen to learn about the Marine Corps through close association with recent Basic School graduates.
- Expose midshipmen to the rigors of Marine life through field exercises and physical events.
- Demonstrate the pride and esprit shared by Marines of all ranks (Memorandum of Understanding, 2001, pp. 2-3).

2. Midshipmen Leadership Training (MLT)

The Naval Academy transitioned from participation in the Bulldog Program to the Midshipmen Leadership Training Program in the summer of 1992. The purpose of MLT was to familiarize all midshipmen with Marine Corps training (Gannon, 2000, p. 152). MLT was in place for only a short period of time and affected the classes of 1995 through 1997 during their third class summer training. Unlike the voluntary PROTRAMID program that provided Marine Corps familiarization during second class summer, MLT was a mandatory three-week summer training program that targeted the newly promoted third class midshipmen (rather than the new first class midshipmen that Bulldog trained). MLT training took place at Officer Candidates School in Quantico, Virginia and exposed midshipmen to training highlights from the Bulldog program including the endurance course, leadership reaction courses and small unit leadership evaluations. Marine Drill Instructors (DI's) that screened and evaluated officer candidates in the other officer screening programs administered the majority of training at MLT. The program exposed all midshipmen to portions of the Marine Officer screening and evaluation process under the direction of Marine Drill Instructors. The program also allowed the Marine Corps limited evaluation of potential Naval Academy officer accessions, a process that was lost when the Academy stopped participating in the Bulldog program.

As Gannon (2000, p. 152) reported, the program had mixed reviews from its participants. Although the goals of the program were noble, mandating that all midshipmen attend a scaled down version of Marine Corps Officer Candidates School was ill advised. Midshipmen completing their plebe year looked forward to the freedoms afforded to third class midshipman. This, combined with the majority of midshipmen having no interest in being Marines provided poor attitudes, apathy and discontent. Midshipmen enthusiasm waned further with the intensity and stress provided by the DI's at Officer Candidates School. Poor attitudes from those having no interest in being there frustrated the Officer Candidates School staff and painted an overall poor picture of the Naval Academy. In the aftermath of MLT and other Marine exposure programs, the Naval Academy developed the Leatherneck program to target midshipmen with interest in becoming Marines.

3. Naval Tactical Training (NTT)

Naval Tactical Training (NTT) is an elective three-week training program offered for the newly promoted third class midshipmen during their summer training period. The Naval Academy staff, assisted by a cadre of temporary duty Ensigns and Second Lieutenants from the graduating class, directs the program and conducts the majority of training on the grounds of the Naval Academy, Naval Station Annapolis and Fort Meade, Maryland. The program provides a one-week introduction to each of three focus areas including Sea, Air and Land (SEAL) Team training, Marine Corps and joint operations (United States Naval Academy Catalog, 2001, p. 65). SEAL week educates midshipmen on the capabilities of the Navy's special operations force. It also provides them the opportunity to experience some of the physical training demands placed upon SEALs. Marine week educates midshipmen on the mission, capabilities and equipment of the Marine Corps. It introduces midshipmen to the basics of small unit tactics at the fire team and squad level and provides an introduction to land navigation and map reading. Midshipmen learn how to conduct a force march and take part in squad level tactical exercises. Joint operations week introduces midshipmen to the roles and missions of the Navy's sister services and provides insight to the interoperability challenges that the Department of Defense continues to battle.

C. MARINE CORPS PREPARATION TRAINING PROGRAMS

Prior to the class of 1989, midshipmen seeking commissions in the Marine Corps had no Marine-specific training in their professional development curriculum. Decreasing performance of Naval Academy graduates at The Basic School forced the Marine Corps and the Naval Academy to consider training programs targeting midshipmen seeking commissions in the Marine Corps. The result was that the Naval Academy classes of 1989 through 1992 participated in the Marine Officer Candidate Bulldog program with their NROTC and MECEP counterparts. Conflicts with other Naval Academy summer training programs as well as academics and athletics combined with falling Marine accessions likely contributed to the demise of the Naval Academy's participation in the Bulldog program. Following an interim period for the class of 1993, the Naval Academy implemented the voluntary Leatherneck program with the class of

1994 that continues today. The Naval Academy added a Marine specific Junior Officer Practicum or Capstone Course, designed to help midshipmen begin the transition from the Naval Academy's culture to that of the Marine Corps, beginning with the class of 1995.

1. None (Classes of 1993, 1988 and earlier)

The Naval Academy did not have any Marine-specific summer training programs or academic curricula in place for the classes 1988 and earlier. Although numerous programs providing exposure and familiarization training evolved throughout the period including "The Road Show" and PROTRAMID programs, none focused on preparing Naval Academy graduates for success in the Marine Corps (Gannon, 2000, pp. 137-138). Exposure to the Marine Corps for midshipmen in these classes came from interaction with instructors, sport and club officer representatives, company officers and alumni. Midshipmen also gained exposure to Marine culture through clubs such as the Naval Academy's Semper Fidelis Society and Airborne Training Unit. Summer training for the class of 1993 fell in an interim period as the Naval Academy transitioned from the Bulldog program to the Leatherneck program.

2. Bulldog (Classes of 1989-1991)

During the 1970s and the early 1980s leaders throughout the Marine Corps became increasingly concerned about the poor performance of USNA graduates at TBS. Performance records showed USNA graduates split into two groups--top performers and substandard performers. Most distressing was that more and more Academy graduates were at the bottom of their TBS classes (Gannon, 2000, p. 147). Diminishing performance coupled with the academy's liberal service selection process indicated that midshipmen might have been selecting Marine Corps for the wrong reasons. Rather than having a strong desire to serve as Marines, it appeared that some midshipmen selected Marine Corps only if less desirable choices remained during their turn at service selection. With a completely open service selection process, Academy graduates who were not dedicated to the ideals, and more importantly, the demands of the Marine Corps chose to join its ranks rather than pursue less appealing alternatives. Those lacking the drive to excel and to be a part of the Marine Corps finished poorly in their TBS classes.

In an effort to ensure that the Academy provided motivated graduates to the Marine Corps, in 1987 then Secretary of the Navy, James Webb, directed that Naval Academy midshipmen complete the NROTC Bulldog program at Officer Candidates School as a prerequisite to service selecting Marine Corps (Webb, 1987). Secretary Webb based his decision upon recommendations from senior Marines stationed at the academy as well as his view of the academy's growing de-emphasis on military indoctrination (Gannon, 2000, p. 148-150). The benefit of having Bulldog alumni return to the academy also could provide a positive impact on the brigade. The training and confidence garnered during Bulldog would bring unity, pride, responsibility and a sense of urgency not evident before. These attributes also would translate to more effective leadership (Holcomb, 1988). Bulldog provided the appropriate screening process as well as a fortitude evaluation and likely replaced plebe summer as the defining element of discipline for those who attended, as Secretary Webb intended (Gannon, 2000, p.149). The policy change requiring successful completion of OCS/Bulldog affected the class of 1989 during their training in the summer of 1988 and remained in place during the summer training periods for the classes of 1989 through 1992.

For the first time since the 1930s, the Marine Corps received a highly motivated group of midshipmen as a result of the academy's participation in the OCS/Bulldog program. The quality of the accessions improved as the proportion of honor graduates, stripers, and athletes choosing the Marine Corps increased. One of the negative aspects of mandatory Bulldog training was that fewer midshipmen were willing to voluntarily undergo the demands of training at OCS. Due to the requirement to complete OCS/Bulldog, fewer applicants were qualified to select Marine Corps. As a result, the academy fell short of its 16.6 percent recruiting goal for each graduating class when the program was a prerequisite for a Marine commission. In fact, the classes of 1989 through 1992 only provided 10.4 percent, 9.1 percent, 10.1 percent, and 13.9 percent, respectively (Bartlett, 1992).

Navy and Marine Corps leaders eliminated the OCS/Bulldog requirement after the class of 1992 completed training in the summer of 1991. Although the subject warrants additional research, likely causes of the cancellation included concerted Navy efforts to eliminate Bulldog screening as well as the Marine Corps' concern about the decreasing

numbers of academy accessions. An additional point of contention was that the Navy had to accept OCS/Bulldog program failures, those deemed unacceptable by the Marine Corps, for commissioning as Ensigns in the Navy.

The policy shift away from mandatory OCS/Bulldog training for prospective Marine commissionees once again provided a gap in Marine training affecting the class of 1993 during the summer of 1992. Marine-specific training reemerged during the summer of 1993 with the voluntary Leatherneck Program.

3. Leatherneck (Class of 1994-Present)

Recognizing that midshipmen exposure to the Marine Corps was limited at best, the Naval Academy transitioned to the Leatherneck program with the class of 1994, during the summer of 1993 as a result of the cancellation of Bulldog. The Leatherneck Program, unique to the Naval Academy, exposes midshipmen to introductory Marine officer training and enhances their understanding of Marine Corps culture and training standards. Unlike the screening and evaluation process that candidates undergo at Bulldog, Leatherneck provides midshipmen with some of the skills that officers at The Basic School receive during the Basic Officer Course. It provides many midshipmen with their first genuine leadership experience. Leatherneck is a voluntary training program that occurs during the summer prior to the participants' first class year. Participants may also elect to participate in a Fleet Marine Force (FMF) Cruise following Leatherneck. FMF cruises allow midshipmen to live and train with active Marine units around the world. FMF cruises allow midshipmen to see the privileges and responsibilities given to Marine lieutenants, work with enlisted Marines in the fleet, and experience the life of a young officer in the fleet.

The Naval Academy Summer Elective Training Website (2002) describes Leatherneck as a four-week program conducted by the Marines at The Basic School in Quantico, Virginia where participants learn the basics of amphibious assault and ground warfare. Midshipmen have the opportunity to develop leadership skill as a member and leader of individual fire teams. Leatherneck is a prerequisite for Fleet Marine Force training.

The Basic School Academic Regulations (2001, pp. 1-5-1-6) describe the Leatherneck Program as a four-week program for first class midshipmen who are considering a Marine Corps commission. The Marine staff at the Naval Academy in conjunction with the staff at The Basic School designed a training program to expose future Marine officers to Marine Corps values, esprit, and leadership. The program teaches midshipmen individual warfighting skills and trains them in basic small unit tactics.

An agreement between the President, Marine Corps University; Superintendent, United States Naval Academy; Commanding Officer, The Basic School and the Senior Marine, United States Naval Academy outlines the mission and responsibility for the Leatherneck Program. The mission of the Leatherneck program is “to motivate, train and evaluate first class midshipmen through a positive Marine Corps experience that introduces students to the camaraderie, esprit and rigors of Marine Corps life” (MOU, 2001, p. 1). The goal is to provide midshipmen considering Marine service assignment the opportunity to acquire basic field skills, to work closely with Marine Officers and to experience the professionalism and pride shared by all Marines. The Leatherneck program strives to:

- Provide feedback on the suitability of participating midshipmen to the Marine Service Assignment Board.
- Educate midshipmen in Marine Corps traditions and reinforce the concept that Marine officers are leaders first and specialists next.
- Expose midshipmen to the concept that every Marine Corps officer is capable of leading Marines in basic combat operations.
- Introduce midshipmen to the leadership tenants taught at The Basic School: leadership is rooted in an officer’s character; an officer is a public figure; an officer’s commission gives rise to “unremitting responsibilities.”
- Introduce midshipmen the Marine Corps doctrine on warfighting, as outlined in Marine Corps Doctrinal Publication-1 (MCDP-1).
- Enable midshipmen to experience the demands placed upon Marine officers at The Basic School through physical events, academic instruction and field training.
- Provide potential Marine officers a field and tactical skill foundation that enables success at The Basic School.

- Expose midshipmen to the wide variety of Military Occupational Specialties available to Marine officers.
- Expose midshipmen to the professionalism, knowledge and esprit of enlisted Marines.
- Professionally enhance the leadership skills and experience of midshipmen through the observation of and discussion with Marine Second Lieutenants.
- Expose midshipmen to Marine Corps uniform, grooming and physical fitness standards (MOU, 2001, pp. 1-2).

4. Junior Officer Practicum Course (Class of 1995 to present)

Although the Academy periodically offered varying forms of warfare community preparation classes as early as the mid 1960s, it did not formalize the curriculum until the birth of the Junior Officer Practicum or Capstone Course in 1995 (Gannon, 2000, p. 143). The Academy developed separate capstone courses for each warfare community that focus on the needs specific to that community. The Division of Professional Development in conjunction with the academic dean assigns midshipmen to capstone courses in accordance with their first service assignment choice during the second semester of their first class year. Following service assignment in February, a number of midshipmen switch capstone courses since some did not receive their first warfare community choice.

Capstone courses help prepare midshipmen to assume the duties and responsibilities of an Ensign or Second Lieutenant in the Navy or Marine Corps. Their primary objective is to provide midshipmen with the professional background that prepares them to enter their assigned warfare communities. Additional objectives include:

- Providing midshipmen with a broad understanding of the Navy and Marine Corps and how they interact
- Providing midshipmen with the depth of understanding of joint operations, information technology and military sociology expected of a service academy graduate (USNA Marine Corps Junior Officer Practicum Web Site, 2002).

The Marine Corps Capstone course consists of three blocks of instruction including leadership, warfighting/tactics and professional development. The leadership

block covers the Marine Corps philosophy on leadership and Fleet Marine Force Field Manual 1-0 (FMFM 1-0) “Leading Marines.” Guest speakers with combat experience provide depth to the class by participating in a discussion panel with midshipmen. Staff Non-Commissioned Officers and junior enlisted Marines discuss officer-enlisted interaction in the Fleet Marine Force and provide the midshipmen with a perspective on the talent they will soon lead. The warfighting/tactics block covers the Marine Corps’ warfighting doctrine as outlined in Marine Corps Doctrinal Publication-1 (MCDP-1), “Warfighting.” The concepts outlined in MCDP-1 provide the foundation for tactical decision-making, weapons employment and development of effective combat orders. Students employ these principles in tactical decision games, sand table exercises and battle studies. The professional development block reviews the mission and organization of the Marine Corps. It includes writing practical application exercises, information on administration for company grade officers, Marine uniform information, a spouse and family advocacy seminar, roles of the unit chaplain and a current operations and issues brief (USNA Marine Corps Junior Officer Practicum Web Site, 2002).

D. NAVAL ACADEMY WARFARE SELECTION/ASSIGNMENT PROCESS

1. Service Selection (Classes of 1994 and earlier)

Naval Academy classes prior to the class of 1995 were assigned to a warfare community through the Naval Academy’s service selection process. The process, provided by the Chief of Naval Operations, directed that first class midshipmen select warfare community and duty stations based solely upon their class standing or order of merit (Chief of Naval Operations, 1990, p. 1).

Service selection normally occurred in February of each year. Order of Merit (OOM) for service selection purposes reflected a midshipman’s overall standing at the beginning of the second semester of his or her first class year. Midshipmen reported to the Commandant of Midshipmen’s conference room in groups of 25 to select warfare communities. Midshipmen filed into the room in OOM sequence and selected from the remaining warfare communities for which they were qualified (COMDTMIDN Notice 1301, 1990, pp. 1-2). Qualification criteria included meeting the requisite physical qualifications for commissioning in the desired warfare community as well as eyesight

and aptitude requirements for those interested in aviation. Additionally, midshipmen in the classes of 1989-1992 desiring to select Marine Corps were required to have successfully completed the Marine Corps OCS “Bulldog” program. In exceptional cases, the Marine Corps Representative at the Naval Academy could recommend a waiver of the OCS/Bulldog requirement to the Commandant of the Marine Corps via the Naval Academy Superintendent and Chief of Naval Personnel (Chief of Naval Operations, 1990, p. 2).

For Marine Corps eligibility, members of the class of 1994 were required to successfully complete the Marine Corps Physical Fitness Test and the Marine Corps obstacle course in addition to standard physical qualifications (COMDTMIDN Notice 1301, 1993, encl 2, p. 2). In addition, the Chief of Naval Personnel and the Deputy Chief of Staff for Manpower and Reserve Affairs of the Marine Corps released a new memorandum of agreement (MOA), in April of 1993, guiding the allocation of Naval Academy graduates to the Marine Corps that replaced the MOA of 15 July 1972. This MOA upheld the standing agreement of up to 16.6 percent (1/6) of graduates per class being able to accept commissions in the Marine Corps. It also specified that the Naval Academy identify midshipmen who were former Marines or were sons/daughters of those serving honorably on active duty in the Marine Corps prior to service selection and give them priority for appointment in the Marine Corps. Remaining Marine Corps billets were available by order of merit within the limits of 16.6 percent of the class (MOA, 1993, p. 1). Service selection for the class of 1994 allowed midshipmen who were former members of the Marine Corps and those with parents who served or were serving honorably on active duty in the Marine Corps priority over others desiring to select Marine Corps. This priority applied to selection of Marine Corps only and did not include priority for Marine aviation options. Midshipmen with priority could select Marine Corps during the week prior to service selection. Those not eligible for priority or those choosing not to select Marine Corps at that time selected with the rest of their class in accordance with their order of merit (COMDTMIDN Notice 1301, 1993, encl 2, p. 2).

2. Service Assignment (Class of 1995-Present)

The warfare community selection process at the Naval Academy changed in the spring of 1996 with the shift from the service selection to the service assignment process. Beginning with the class of 1995, the Chief of Naval Operations directed that the Naval Academy convene administrative service assignment boards. These boards, considered the desires and qualifications of each midshipman and recommended assignment of warfare communities to the Naval Academy Superintendent for final approval (Chief of Naval Operations, 1995, p. 1).

The service assignment process consists of five phases: (1) interview; (2) community screening; (3) preference designation; (4) assignment and (5) review/final approval. The goal of this process is to provide “the best possible fit between the qualifications and desires of midshipmen and the needs of the Navy and Marine Corps” (COMDTMIDN Notice 1301.1, 1998, pp. 1).

a. Interview Phase

The interview phase consists of an interview with a team of two or three officers from varying warfare communities. The purpose of the interview is to provide objective information on each midshipman to the respective service assignment boards. Interview teams evaluate the midshipman’s knowledge and motivation for the preferred warfare community, action he or she has taken to improve knowledge or leadership skills and any significant activities or actions taken to bolster professional development. Teams assess each midshipman’s qualifications in appearance/poise, oral communication/expression of ideas, leadership potential, community motivation and community understanding. Scores in these five areas range from 0-10. The senior member of each team provides a narrative summary of each midshipman’s performance (COMDTMIDN Notice 1301.1, 1998, pp. 1-2).

b. Community Screening Phase

The community screening process ensures that midshipmen meet the medical requirements and community specific academic, physical and professional minimums. Naval Medical Clinic, Annapolis ensures that midshipmen meet relevant Bureau of Medicine standards for commissioning through the pre-commissioning

physical process. This process includes aero medical screening to ensure applicants desiring aviation assignments meet aviation specific physical, size and weight limitations. Additionally, Midshipmen desiring aviation assignments must meet specified minimum scores on the Aviation Selection Test Battery, a flight aptitude examination that estimates potential for success in flight school, to be eligible for Marine aviation assignments (COMDTMIDN Notice 1301.1, 1998, pp. 3-4).

c. Preference Designation Phase

Once the screening phase is complete, midshipmen submit a preference or wish list of the warfare communities for which they are qualified. Midshipmen submit their preferences to their company officers at the beginning of the second semester of their first class year (COMDTMIDN Notice 1301.1, 1998, p. 4).

d. Assignment Phase

Service assignment boards convene for each community (e.g. Marine Corps, surface warfare, Navy pilot) to select the best-qualified midshipmen among the applicants. The Marine Corps Service Assignment Board consists of three to five Marine officers with the Naval Academy's senior Marine as the president of the board. Recorders assist with board proceedings. The other warfare community selection boards are organized similarly. Each board considers all qualified midshipmen indicating that particular community as their first choice. Following guidance provided by the Superintendent, the selection boards review each midshipman's service record and service selection interview then select the best-qualified individuals up to the established ceiling for that warfare community. Individuals that do not receive their first choice have their records considered by the selection board reviewing their second choice. This process continues until all midshipmen have a warfare community assignment. Selection boards choose alternates to fill vacancies created by those unable to accept their commissions (COMDTMIDN Notice 1301.1, 1998, p. 5).

e. Review/Final Approval

An executive review board, headed by the Commandant of Midshipmen, reviews the recommendations of all selection boards for compliance with the Superintendent's guidance. Once review of the recommendations is complete, the review

board forwards them to the Superintendent for final approval (COMDTMIDN Notice 1301.1, 1998, pp. 5-6).

E. CHAPTER SUMMARY

This chapter highlighted some of the changes in Marine Corps-focused training programs that Naval Academy midshipmen have participated during the period covered in this study. It also described the Academy's change from service selection to service assignment and how this transition provided the Marine Corps with a screening mechanism that was present only during the period when midshipmen aspiring to serve as Marines were required to complete Bulldog. Table 4 provides a summary of Marine specific training programs at the Naval Academy from 1988-1999. The study now shifts to a review of relevant literature concerning performance.

Table 4. Marine Specific Training Programs at The Naval Academy (1988-1999)

Program	Implementation Period	Affected Naval Academy Classes
PROTRAMID	1960s-Present	1960s-Present
Midshipman Leadership Training (MLT)	1992-1994	1995-1997
Naval Tactical Training (NTT)	1996-Present	1999-Present
OCS/Bulldog	1988-1991	1989-1992
Leatherneck	1993-Present	1994-Present
Junior Officer Practicum or Capstone Course	1995-Present	1995-Present
Service Selection	Ended in 1995	Through 1994
Service Assignment	Began in 1995	1995-Present

IV. NORTH AND SMITH STUDY

A. INTRODUCTION

James North and Karen Smith conducted a study entitled “Officer Accession Characteristics and Success at Officer Candidates School, Commissioning, and The Basic School” in 1993 for the Center for Naval Analyses. This study provides insight into the variables that predict performance at Officer Candidates School (OCS) and The Basic School (TBS). The North and Smith (1993) study analyzed completion of OCS, whether individuals accepted their commissions, and performance at TBS in an effort to determine if performance differences were a result of discrimination toward minorities or were due to other measurable factors.

B. REVIEW

North and Smith (1993) obtained data from the Automated Recruit Management System (ARMS) and the Headquarters Master File (HMF) from Headquarters Marine Corps. CNA maintains a longitudinal data file for all USMC personnel based on the data it receives from the HMF on a quarterly basis. CNA merged TBS performance data with its longitudinal data file in order to build the dataset used in its study by matching records on social security number. Files from TBS provided 17,945 cases covering students from fiscal year 1980 through fiscal year 1991. The TBS data matched only 15,970 records within the longitudinal data file. CNA estimated that the 1,975 missing records in the longitudinal file presumably left the Marine Corps prior to record acquisition in fiscal year 1986, hence were dropped from the study. The study estimated performance using separate models for males and females since the authors hypothesized that the characteristics defining success for women were somewhat different from those for men (North and Smith, 1993, p.53).

The dependent variable in the OCS portion of the CNA study was attrition, measured as a binary (1,0) variable. The study employed logit models to predict the attrition outcome. North and Smith (1993) estimated attrition as a function of a small group of independent variables including personal characteristics, Marine Corps program

characteristics and fiscal year of the program. Personal characteristics included age, race/ethnicity, SAT score (or equivalent), Physical Fitness Test (PFT) score, college major, college characteristics and prior service experience. Marine Corps program characteristics included type of OCS class (PLC or OCC), whether the individual was in the Enlisted Commissioning Program (ECP) and whether the individual was an aviation or law guarantee. Fiscal year dummy variables captured year-to-year differences in the programs such as curriculum, course or event changes.

The dependent variable in the TBS portion of the North and Smith study was a continuous variable, overall class ranking. North and Smith derived class-standing percentile in order to standardize for variations in class size. Ordinary least squares regression provided the estimated effects of personal and Marine Corps program characteristics on TBS class rank. North and Smith estimated TBS performance as a function of the same general categories of variables used in the logit model of OCS attrition, but with some differences in the specific variables. Personal characteristics included age, race/ethnicity, SAT score (or equivalent), whether the individual had an EL test score waiver, college major (science, technical/engineering/math), whether the individual was a prior service Marine or had other prior service, and whether the individual was married. Marine Corps program characteristics included accession source (PLC, OCC, USNA, NROTC, ECP, MECEP), and what program the officer was in (law, aviation, ground) (North and Smith, pp. 45-47).

Results of the North and Smith study showed that, after controlling for the explanatory variables, a performance gap remains between minority and majority officer candidates. Minority male officer candidates were 8 percentage points less likely to complete OCS than their non-minority counterparts. The most significant contributor to success at OCS was prior Marine enlisted experience. Other significant predictors of success were Physical Fitness Test score and race/ethnicity.

The logit model for women indicated that women have far higher attrition rates at OCS than their male counterparts. Female attrition is 20 percentage points higher than that of males. The study found that gender had much greater impact than race or ethnicity (North and Smith, p. 3). The model predicting class rank at TBS also found that

race had the biggest effect on success, with African-American officers having a class rank 22 percentile points lower than their white counterparts.

C. SUMMARY

This study compares performance of Naval Academy graduates at the Basic School as a function of the different Marine-specific summer training programs that were required of Naval Academy graduates during the period studied. The primary hypothesis is that cohorts completing OCS/Bulldog during summer training with the classes of 1989-1992 will be associated with higher standing at TBS than cohorts completing the Leatherneck Program or those with no Marine-specific preparation. Naval Academy midshipmen participating in the OCS/Bulldog program completed the same screening and evaluation process required in each of the other Marine Officer programs. This common experience provided consistent training to all Marine Officer programs and eliminated peer bias toward Naval Academy accessions since they completed the same training, screening, and evaluation process as other officer programs.

The North and Smith study for the Center for Naval Analyses provides the framework for the data analysis conducted in later chapters. The findings in subsequent chapters are consistent with many of North and Smith's (1993) findings. The next chapter of this thesis shifts to a quantitative analysis of selected performance predictors for success at The Basic School.

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V. RESEARCH METHODOLOGY

A. INTRODUCTION

This study examines the performance of Naval Academy graduates during the Basic Officer Course (BOC) at The Basic School (TBS) as a function of Marine-specific summer training at the Naval Academy. The Naval Academy's Office of Institutional Research, Planning and Assessment, the Manpower Section at Headquarters Marine Corps, the testing office at The Basic School, and the Marine Corps University Archives provided the performance and demographic information used in this study. Information from these sources was merged to provide performance and demographic information on the individuals included in the study during their training at the Naval Academy and at The Basic School. The study examines the performance of Marine Corps accessions from the Naval Academy and includes the male members of the classes of 1988 through 1999. Table 5 describes the variables used in this study. Table 6 outlines the academic majors within the dataset. Asterisks mark the disciplines no longer offered by the Naval Academy.

B. DATA SOURCES

1. Naval Academy Data

The Naval Academy's Office of Institutional Research, Planning and Assessment provided the demographic information for each officer as well as his performance as a midshipman. The Naval Academy established the Office of Institutional Research, Planning and Assessment in 1992 to help evaluate institutional data enabling the Academy to make appropriate changes to the admissions, education and development processes. The Office of Institutional Research, Planning and Assessment (IR) at the Naval Academy provides the Superintendent and the administration with a single source of evaluated information for midshipmen and Naval Academy graduate performance. IR also coordinates all surveys conducted at the Naval Academy including those on midshipmen, faculty and staff (USNA IR Homepage, 2002). IR maintains a data warehouse that contains information on each midshipman during the application process, throughout his or her training and education at the Naval Academy and during active

service in the Navy and Marine Corps. The IR dataset provided records from the graduating classes of 1988 to 2000 and included 15,596 cases.

2. Headquarters Marine Corps Data

The Manpower Section at Headquarters Marine Corps provided the majority of the information on each officer during the Basic Officer Course. Headquarters Marine Corps maintains a data warehouse that contains demographic and performance data on its officers from 1980 to present. The testing office at The Basic School and the Marine Corps University Archives provided performance data for a number of cases that were not included in the Headquarters Marine Corps dataset. The dataset provided by Headquarters Marine Corps covered officer performance from 1980 through 1999 and included 28,253 cases.

Table 5. Description of Variables Used in the Study

Variable Description	Variable Type	Variable Name	Possible Values
Demographic Information			
USNA Graduation Year/Class	Interval	grad_yr	1988-1999
Varsity Letter Winner	Binary	var_ltr	1, 0
Age at Commissioning	Continuous	agecomm	21-25
Ethnic Code	Nominal	ethnic	AF=Black CA=White HI=Hispanic O=Other
Ethnic: White	Binary	ethwhite	1, 0
Ethnic: Black	Binary	ethblack	1, 0
Ethnic: Hispanic	Binary	ethhisp	1, 0
Ethnic: Other	Binary	ethother	1, 0
Parents w/ Non-Marine Corps Service	Binary	svcj	1, 0
Parents w/ Marine Corps Service	Binary	svcjrm	1, 0
Parents without Military Service	Binary	svcjrn	1, 0
Prior Enlisted Service (Non-Marine)	Binary	prisvc	1, 0
Prior Enlisted Service (Marine Corps)	Binary	primarne	1, 0
No Prior Enlisted Service	Binary	prinone	1, 0
Gender	Binary	gender	1, 0
Academic / Training Information			
TBS Class Standing Percentile	Interval	tbspcl	0-100%
OCS/Bulldog Training Program	Binary	bulldog	1, 0
Leatherneck Training Program	Binary	ltrneck	1, 0
No Marine-Specific Training Program	Binary	notrng	1, 0
Aviation Guarantee	Binary	aircont	1, 0
Ground MOS Guarantee	Binary	grndmos	1, 0

Variable Description	Variable Type	Variable Name	Possible Values
Academic Major at USNA	Nominal	ac_major	See Table 6
Group I Major (Engineering)	Binary	group1	1, 0
Group II Major (Math/Sciences)	Binary	group2	1, 0
Group III Major (Humanities)	Binary	group3	1, 0
Service Selection Participant	Binary	servsel	1, 0
Service Assignment & Capstone Course Participant	Binary	servasmt	1, 0
USNA Order of Merit Percentile	Interval	oompctl	0-99.9%
Military Cumulative QPR	Nominal	cum_mqpr	2.28-3.94
Academic Cumulative QPR	Nominal	cum_aqpr	2.00-4.00

Table 6. Academic Majors Available at The Naval Academy During the Subject Period

Group I (Engineering) Majors	Code
Aeronautical Engineering	EAS
Astronautical Engineering	EASA
Electrical Engineering	EEE
General Engineering	EGE
Mechanical Engineering	EME
Naval Architecture	ENA
Ocean Engineering	EOE
Systems Engineering	ESE
Marine Engineering	ESP
Group II (Math/Science) Majors	
Chemistry	SCH
Computer Science	SCS
General Science	SGS
Mathematics	SMA
Oceanography	SOC
Physics	SPH
Quantitative Economics	SQE
Physical Science	SPS
Group III (Humanities)	
Economics	FDC
English	HEG
History	HHS
Political Science	FPS

3. The Merged USNA/HQMC File

Records from the Naval Academy's Office of Institutional Research, Planning and Assessment covering the classes 1988 through 2000 (N=15,596) were merged by Social Security Number (SSN) with the dataset provided by the Manpower Section at Headquarters Marine Corps (N=28,253) to provide the initial dataset (N=15,596). After choosing the Marine service selectees/assignees and the records designated as Naval Academy accessions from the initial dataset, the working dataset included 1,952 records. Analysis of the working dataset eliminated 14 records identified by HQMC as Naval Academy graduates who did not have Naval Academy performance records. HQMC likely misidentified these individuals as Naval Academy graduates. Analysis also eliminated 43 individuals from the Naval Academy who did not graduate, but who had performance data in the HQMC dataset. These individuals presumably left the Naval Academy and received a Marine commission after college graduation through another commissioning program. Although Naval Academy data were available for the class of 2000, HQMC records did not provide TBS performance information on this cohort. Elimination of the class of 2000 (N=157) reduced the working dataset to 1,738 records. Dropping females (N=117) from the study further reduced the dataset to 1,621 records. Of the remaining data on USMC Naval Academy male accessions from the classes of 1988 through 1999 (N=1,621), records from the Marine Corps University Archives indicated that two individuals dropped from training while at TBS. Three additional members, from different Naval Academy graduating classes, did not have training records at TBS or in the Marine Corps University Archives and presumably separated from the Marine Corps prior to reporting for training at TBS. Finally, the study dropped one member of the class of 1999 from the dataset who was in training at The Basic School at the time of this study. The final dataset included 1,615 records.

C. RESEARCH MODEL

1. Background

The model used in this study focuses on the impact of Marine-specific summer training for Naval Academy midshipmen on class standing at The Basic School for newly commissioned Second Lieutenants who attended the Academy. Personal characteristics

of each individual are included in the model to control for differences in the demographic make-up of each class. This study excluded female Naval Academy graduates due to their small population, particularly during the years that successful completion of OCS/Bulldog was a prerequisite for Marine Corps commissioning from the Academy. Additionally, policy changes in the mid 1990s that opened more occupational fields to women likely signaled a shift in the reasons that many females pursued commissions in the Marine Corps.

The model considers overall class standing at TBS as the dependent variable. Like the North and Smith (1993) study, this thesis converts TBS class standings to percentiles based upon the number of students in each class. This action standardizes the rankings for class size at The Basic School.

Other control variables include demographic information from individual training records at the Naval Academy. The study used the selected variables based upon review of prior studies as well as discussion with Marine leaders and others' expert judgment. The variables include: Naval Academy standing, designation as a Naval Academy varsity letter winner, age at commissioning, race/ethnic information, academic major, prior enlisted or Marine enlisted experience, whether parents served in the military (service junior information) or whether parents served in the Marine Corps, whether the individual was a ground or aviation option at commissioning, whether the individual participated in the service selection process, the type of summer training in which the individual participated (i.e., OCS/Bulldog, Leatherneck, or no training) and a dummy variable representing participation in the service assignment process and the Junior Officer Practicum/Capstone Course (which occurred at the same time). In the primary analysis, two sets of variables were used as indicators of an individual's standing at the Naval Academy. Order of Merit Percentile provides an individual's standing at the Naval Academy and is used in the primary model. Cumulative Academic (cum_aqpr) and the Cumulative Military Performance QPR (cum_mqpr) are the main components of an individual's standing at the Naval Academy and are used in the secondary model.

Thus, the primary multivariate model is specified as follows:

TBS rank = f (Summer Training, Order of Merit, Prior Enlisted Experience, Race/Ethnicity, Academic Major, Parents' Military Experience, Age, Naval Academy Varsity Athlete Status, Ground or Aviation Option, Service Selection Participant, Service Assignment/Capstone Course Participant).

The secondary multivariate model is as follows:

TBS rank = f (Summer Training, Cumulative Academic QPR, Cumulative Military Performance QPR, Prior Enlisted Experience, Race/Ethnicity, Academic Major, Parents' Military Experience, Age, Naval Academy Varsity Athlete Status, Ground or Aviation Option, Service Selection Participant, Service Assignment/Capstone Course Participant)

2. Primary Assumptions

The primary goal of this study is to analyze the relationship between Marine-specific summer training of Naval Academy midshipmen and their class standing at TBS. Therefore, the focus variables are the dummies for the type of summer training program. The remaining explanatory variables are included in the model to control for differences in graduating class demographics and other factors that may affect TBS performance.

The primary hypothesis is that cohorts completing OCS/Bulldog during summer training with the classes of 1989-1992 will be associated with better performance, i.e., higher standing at TBS. The model also expects varsity letter winners, older age at commissioning, prior enlisted experience and Marine enlisted experience to be associated with better performance at TBS. Higher Order of Merit Percentile in the primary model or higher Military and Academic Quality Point Rating (QPR) in the secondary model should be indicative of high achieving individuals and should be associated with higher standing at TBS. Individuals who participated in both the service assignment process and the Marine Capstone Course (classes of 1995-1999), represented by a single dummy variable, should be more qualified and better prepared and therefore should have higher standings at TBS. Finally, the model hypothesizes that minorities and aviation guarantees will have lower standings at TBS.

The model hypothesizes that individuals with aviation guarantees will have lower standings at TBS, all else equal. The rationale is that aviation guarantees, unlike their ground counterparts, receive their Military Occupational Specialty (MOS) assignments before reporting to the Basic Officer Course and have less incentive to do well at TBS. Ground assignable officers, on the other hand, have an incentive to perform to the best of their abilities during the Basic Officer Course because they receive their MOS in accordance with their desires, the needs of the Marines Corps, and their staff platoon commander's performance assessment.

Instructors and staff at The Basic School debate the existence of performance differences between ground assignable and aviation guarantee officers. Experience from The Basic School indicates that officers entering under the aviation option are less motivated to perform at TBS than their ground MOS competitors. This is because individuals with aviation options know from the first day of training at The Basic School that they are going to flight school after successful completion of the Basic Officer Course. Ground assignable officers, on the other hand, compete for specific ground Military Occupational Specialties (MOS's) based upon their performance at TBS.

Table 7 summarizes the hypothesized effects of the independent variables on overall standing (TBS standing percentile) at TBS. A plus sign indicates a positive hypothesized effect of the variable on TBS class standing while a minus sign indicates a negative hypothesized effect.

Table 7. Hypothesized Effects of Selected Independent Variables on TBS Standing Percentile

Variable	Hypothesized Effect
Varsity Letter Winner	+
Age at Commissioning	+
Ethnic: White	+
Ethnic: Black	-
Ethnic: Hispanic	-
Ethnic: Other	-
Parents w/ Military Service	+
Parents w/ Marine Corps Service	+
Prior Enlisted Service (Non-Marine)	+
Prior Enlisted Service (Marine Corps)	+
OCS/Bulldog Training Program Attendance	+
Leatherneck Training Program Attendance	+
No Marine-Specific Training	-
Aviation Option	-
Ground MOS Option	+
Group I Academic Major (Engineering)	+
Group II Academic Major (Math/Sciences)	-
Group III Academic Major (Humanities)	-
Service Selection Participant	-
Service Assignment/Capstone Course Participant	+
USNA Order of Merit Percentile	+
Military Cumulative QPR	+
Academic Cumulative QPR	+

D. EMPIRICAL ANALYSIS

Appendix A contains a frequency analysis of the variables used in this study. Appendix B contains SPSS output of the detailed empirical data analysis. The data used in this study contains only male officers who accepted commissions in the Marine Corps from the Naval Academy. The sample contained 1,615 valid records for the classes of 1988 through 1999; 355 (22 percent) received no Marine-specific training (Classes of 1988 and 1993); 430 (27 percent) completed OCS/Bulldog (Classes of 1989-1992); and 830 (51 percent) participated in the Leatherneck program (Classes of 1994-1999).

As outlined previously, the primary goal of this thesis is to determine whether summer training programs designed to prepare midshipmen for service in the Marine Corps affect their performance at TBS. Although many factors, such as interaction with

instructors, company officers, coaches and mentors, may affect midshipman development, a formal program of concentrated instruction on Marine-specific skills likely provides the greatest single impact on midshipman preparation for Marine Corps service and on performance at their first Marine service school, The Basic School.

Summaries of the statistical analyses from the appendices are included in the tables throughout this chapter. Independent samples t-tests provide the statistical significance for the difference in the means of variables with binary outcomes. Variables with *t* values above 2.0 indicate that the differences in the group means are statistically significant. Significance values in each table provide the significance level of the differences. One Way Analysis of Variance (ANOVA) calculations provide the statistical significance for the difference in the means of variables with multiple outcomes. F values above 2.0, like that of the *t* values above, indicate that the differences in the means are statistically significant. Significance values in each table also provide the significance level.

The preliminary analysis indicates that the summer training program affects the success of USNA graduates at The Basic School as reflected in the differences in the mean values for TBS class standing percentiles listed in Table 8. The average TBS class standing for midshipmen completing OCS/Bulldog is 2.54 percentile points higher than for Leatherneck graduates and 6.35 percentile points higher than for those with no Marine-specific training. Midshipmen completing Leatherneck averaged 3.81 percentile points higher than those with no training. These differences indicate that the Leatherneck and OCS/Bulldog curricula are important factors in the preparation of USNA graduates for the challenges of TBS.

Table 8. TBS Class Standing Percentile by Summer Training Program

Summer Training Program	N	Min	Max	Mean	Std Deviation	F	Sig
Leatherneck	830	0	100	57.61	26.90	5.402	0.005
No Training	355	1	100	53.80	26.60		
OCS/Bulldog	430	0	100	60.15	27.52		
Total	1615	0	100	57.45	27.07		

Varsity letter winners were included in the model because of the emphasis placed on participation in varsity athletics at the Naval Academy and the time and financial resources expended by the Naval Academy in their pursuit. The work ethic and team

dynamic gained from participating in sports is likely to have a positive influence on an individual's performance in the military. The preliminary analysis shown in Table 9 indicates that participating in varsity sports and receiving a varsity letter is a disadvantage as TBS percentile mean values were 2.29 percentage points higher for non-letter winners; however, these differences were not statistically significant.

Table 9. TBS Class Standing Percentile by Varsity Letter Winners

Varsity Letter Winner	N	Min	Max	Mean	Std Deviation	t	Sig (2 tailed)
No	1081	0	100	58.21	27.54	1.601	0.110
Yes	534	0	100	55.92	26.06		
Total	1615	0	100	57.45	27.07		

The study by North and Smith included age at commissioning as an independent variable. Age of an individual at commissioning should play a role in one's success due, in part, to the increased maturity associated with age. Older individuals are less likely to fall victim to the freedoms associated with commissioning and being away from the restrictive environment of the Naval Academy. Variances in the mean ages at commissioning in each program were minimal. As Table 10 shows, mean ages ranged from a minimum of 22.16 in the 'no training' group to a maximum of 22.3 in the Leatherneck group.

Table 10. Ages at Commissioning by Summer Training Program

Summer Training Program	N	Min	Max	Mean	Std Deviation	F	Sig
Leatherneck	830	21	25	22.30	1.01	2.959	0.052
No Training	355	21	25	22.16	0.89		
OCS/Bulldog	430	21	25	22.20	1.01		
Total	1615	21	25	22.24	0.99		

Table 11 shows the mean TBS class standings by age at commissioning. Preliminary results do not support the hypothesis of a positive relationship between age and performance, as the youngest cohort maintains the highest average score at TBS. Conversely, the oldest cohort maintains the second highest TBS average. These data indicate that age has little or no consistent effect on an individual's performance at TBS.

Table 11. TBS Class Standing Percentile by Age at Commissioning

Commissioning Age	N	Min	Max	Mean	Std Deviation	F	Sig
21	320	0	100	63.34	26.50	10.825	0.000
22	828	0	100	58.24	26.38		
23	303	0	100	50.23	27.07		
24	86	0	98	51.35	26.74		
25	78	1	100	59.60	30.26		
Total	1615	0	100	57.45	27.07		

The North and Smith (1993) study found that prior Marine enlisted experience provided one of the largest advantages for success at Officer Candidates School and The Basic School. The model used in this study assumes that prior enlisted experience in any service provides an advantage for those attending The Basic School. As Table 12 shows, mean standings for those with prior enlisted experience are 16.5 percentile points lower than for those with no prior service. Conversely, prior Marine enlisted experience provides a performance advantage at The Basic School. Midshipmen with prior Marine enlisted experience had a mean standing 5.1 percentile points above those without any prior enlisted experience and 21.6 percentile points above those with non-Marine enlisted experience. This finding parallels that of North and Smith (1993) who found prior Marine enlisted experience was a strong component of success at Officer Candidates School and The Basic School.

Table 12. TBS Class Standing Percentile by Prior Enlisted Experience

Prior Enlisted Experience	N	Min	Max	Mean	Std Deviation	F	Sig
No Enlisted Experience	1215	0	100	60.49	25.96	54.464	0.000
Prior Enlisted (Non-Marine)	321	0	99	43.95	26.70		
Marine Prior Enlisted	79	3	100	65.57	28.15		
Total	1615	0	100	57.45	27.07		

Although the subject warrants further investigation, ethnicity also plays a role in the success of newly commissioned officers at TBS. This finding is similar to the North and Smith (1993) study, wherein minority officers' rankings fell below those of their white counterparts. Table 13 shows that white officers finished significantly higher than minority officers. The average class standing of whites is 24 percentile points above that of blacks, 14.4 percentile points above that of Hispanics and 13.6 percentile points above that of other minorities. These results mirror those of North and Smith (1993).

Table 13. TBS Class Standing Percentile by Ethnic Category

Ethnic Category	N	Min	Max	Mean	Std Deviation	F	Sig
Black	110	0	91	36.46	25.74	38.867	0.000
White	1349	0	100	60.45	26.04		
Hispanic	94	3	98	46.01	26.26		
Other	62	0	98	46.83	29.35		
Total	1615	0	100	57.45	27.07		

Candidates from the Naval Academy seeking commissions in the Marine Corps are able to select one of three MOS paths as part of their commissioning. These MOS paths include: USMC pilot, USMC Naval Flight Officer (NFO) and USMC ground. Screening, identification and designation of Marine pilots and NFOs prior to commissioning is necessary to ensure candidates are able to meet the demanding physical qualifications and aptitude requirements for flight training. Ground assignable individuals comprise the remainder of the Naval Academy graduates who accept commissions in the Marine Corps. Individuals in the pilot and NFO paths (aviation options) receive assurance of flight training following successful completion of TBS. Ground assignable officers, on the other hand, compete for specific ground Military Occupational Specialties (MOS's) based upon their performance at TBS. Experience from The Basic School indicates that officers with guaranteed aviation assignments are less motivated to perform at TBS than their ground MOS competitors. The data in Table 14, however, indicates the opposite. Officers with aviation guarantees maintained an 8.4 percentile point higher mean standing than the ground assignable officers.

Table 14. TBS Class Standing Percentile by MOS Guarantee

MOS	N	Min	Max	Mean	Std Deviation	T	Sig (2 Tailed)
Aviation Option	576	1	100	62.84	24.71	6.026	0.000
Ground Option	1039	0	100	54.46	27.86		
Total	1615	0	100	57.45	27.07		

The model in this study hypothesizes that higher graduation standing (OOM) at the Naval Academy will have a positive effect on TBS graduation standing. Although academic performance constitutes the majority of an individual's standing at the Naval Academy, elements such as military performance, conduct and physical education/physical fitness grades combine with academics to provide the overall Order of Merit (OOM).

Table 15 contains order of merit percentiles by summer training program. The average OOM percentile for those participating in the Leatherneck program is 4.4 percentile points higher than those participating in OCS/Bulldog. The group with no training had the highest average OOM percentile with a 4.9 percentile point advantage over the OCS/Bulldog group and a 0.5 percentile point advantage over the Leatherneck group. Assuming that a higher order of merit at the Naval Academy is associated with higher achieving individuals, the TBS standings of the 'No Training' cohort are expected to be higher than those of the Leatherneck cohort. Similarly, the Leatherneck cohort standing is expected to be higher than that of the OCS/Bulldog cohort, all else equal. Note that when Order of Merit is controlled in a regression model, the coefficient of the OCS/Bulldog dummy variable will reflect the direct effect of the summer training program and will not include the indirect effect of the lower order of merit of the OCS/Bulldog participants.

Table 15. USNA Order of Merit Percentile by Summer Training Program

Summer Training Program	N	Min	Max	Mean	Std Deviation	F	Sig
Leatherneck	830	0.0	99.8	46.61	28.54	4.178	0.015
No Training	355	0.7	99.5	47.08	26.52		
OCS/Bulldog	430	0.4	99.9	42.17	29.11		
Total	1615	0.0	99.9	45.53	28.32		

This study hypothesizes that higher Academic and Military QPRs will be associated with better performance at The Basic School. The study assumes that high academic and military achievers at the Naval Academy will achieve the same high standing at The Basic School. It also assumes that high achievement at the Academy translates to high achievement elsewhere. As Tables 16 and 17 show, participants in the Leatherneck program maintained the highest average Academic and Military QPRs at the Academy, with a 0.1 and 0.2 percentile point Military and Academic QPR advantage over the no training and the OCS/Bulldog groups, respectively.

Table 16. USNA Academic QPR (AQPR) by Summer Training Program

Summer Training Program	N	Min	Max	Mean	Std Deviation	F	Sig
Leatherneck	830	2.02	4.00	2.80	0.47	31.692	0.000
No Training	355	2.01	3.91	2.71	0.39		
OCS/Bulldog	430	2.00	3.93	2.59	0.39		
Total	1615	2.00	4.00	2.72	0.44		

Table 17. USNA Military QPR (MQPR) by Summer Training Program

Summer Training Program	N	Min	Max	Mean	Std Deviation	F	Sig
Leatherneck	830	2.41	3.88	3.26	0.28	59.182	0.000
No Training	355	2.35	3.94	3.16	0.29		
OCS/Bulldog	430	2.28	3.83	3.07	0.34		
Total	1615	2.28	3.94	3.19	0.31		

The Naval Academy emphasizes engineering and technical majors within its academic curriculum and strongly encourages midshipmen to select engineering majors. Much of the Academy's engineering influence stems from the need for technical expertise to help understand and cope with the increasingly complex equipment throughout the Navy. Because of the Academy's emphasis on technical majors and the critical thinking skills developed in the course of study, individuals in technical majors are expected to have higher standings at The Basic School. As Table 18 shows, Group I majors had a 14.7 percentile point advantage over Group II majors in TBS standing and a 10.6 percentile point advantage over Group III majors.

Table 18. TBS Class Standing Percentile by Academic Major Grouping

Major Group	N	Min	Max	Mean	Std Deviation	F	Sig
Group I	506	2	100	65.73	24.48	39.165	0.000
Group II	398	0	99	51.02	27.11		
Group III	711	0	100	55.16	27.43		
Total	1615	0	100	57.45	27.07		

As outlined previously, the Naval Academy used the service selection process with the classes of 1994 and earlier. The service selection process allowed midshipmen to select their warfare community based solely upon their order of merit, consistent with meeting the prerequisites for the desired community. This procedure did not allow any input to the selection process regarding the individual's suitability for any specific warfare community. Starting with the class of 1995, the Academy shifted to the service assignment process. Service assignment allowed each warfare community to interview and assess the applicant's qualifications and desire for assignment to that community. Service assignment allowed officials the latitude to consider more than an individual's standing in the class and physical qualifications for assignment to the community. The Academy's move to the service assignment process allowed Marine Corps officials greater latitude in the selection of individuals who would be better qualified for commissioning in the Marine Corps.

Concurrent with the change to the service assignment process for the class of 1995, the Academy also implemented the Junior Officer Practicum or Capstone course. The Capstone Courses are specific to each warfare community and help prepare midshipmen to assume the responsibilities of an Ensign or Second Lieutenant in the Navy or Marine Corps. The Capstone course provides midshipmen with the professional background that prepares them to enter their assigned warfare community (USNA Marine Corps Junior Officer Practicum Website, 2002). As mentioned previously, this study categorizes both of these events under a single dummy variable since they were both implemented simultaneously. The study assumes that Service Assignment/Capstone participants will achieve higher scores at The Basic School than their Service Selection predecessors. As Table 19 shows, the Service Assignment/Capstone Course cohort achieved a mean TBS standing that was 2.9 percentile points higher than the Service Selection cohort.

Table 19. TBS Class Standing Percentile by Service Selection Participation

	N	Min	Max	Mean	Std Deviation	t	Sig (2 Tailed)
Service Assignment & Capstone Participant	663	0	100	59.16	26.29	2.124	0.034
Service Selection Participant	952	0	100	56.26	27.56		
Total	1615	0	100	57.45	27.07		

The model used in this study assumes that individuals who have parents with military experience will have an advantage at The Basic School. Since many individuals grow up around the military as a result of their parents' military obligations, the model hypothesizes that much of the experience of military life as well as the call to duty passes to the sons and daughters in the military family. Additionally, the model assumes that the family tradition of military service serves as motivation to perform well for the younger generations in each family. As Table 20 shows, mean standings for those with at least one parent who served in the Marine Corps are 1.21 percentile points higher than those with parents having no military service. Mean standings for those with at least one parent who served in a branch of the service other than the Marine Corps are 1.26 percentile points higher than those with parents having no military service and 0.05 percentile

points higher than those with at least one parent who served in the Marine Corps; however, these differences were not statistically significant.

Table 20. TBS Class Standing Percentile by Parents' Military Experience

	N	Min	Max	Mean	Std Deviation	F	Sig
Parents without Military Service	783	0	100	56.81	27.24	.431	.650
Parents with Military Service (Non-USMC)	611	0	100	58.07	26.71		
Parents with Military Service (USMC)	221	1	99	58.02	27.55		
Total	1615	1	100	57.45	27.07		

E. CHAPTER SUMMARY

The 'Data Sources' section provided a discussion of the dataset used in this study as well as the method used to reduce initial datasets obtained from the Naval Academy's Office of Institutional Research, Planning and Assessment, the Manpower Section at Headquarters Marine Corps, the testing office at The Basic School, and the Marine Corps University Archives to the final working dataset. The 'Empirical Analysis' section provided an initial evaluation of TBS performance as a function of the many predictors included in the model. The analysis in this chapter provided a preliminary evaluation of the model's assumptions and the data within the working dataset with the results highlighting some of the performance differences between varying cohorts within the study. In the next chapter the thesis focuses on the regression analysis of selected performance predictors for success at The Basic School.

VI. RESULTS OF THE MULTIVARIATE MODELS

A. INTRODUCTION

The dependent variable in the regression models is the class standing of Naval Academy graduates at the Basic School. This study converts Naval Academy graduates' composite class standing from Basic School into percentiles to standardize the rankings for class size. Use of percentiles provides a continuous dependent variable and allows use of ordinary least squares estimation techniques to obtain the effects of the selected independent variables on students' success at The Basic School.

The specific goal of this study is to determine whether Marine-specific summer training programs at the Naval Academy contributed to higher standings at The Basic School. The secondary goal is to determine which factors and programs are associated with strong performance at The Basic School.

B. PRIMARY MODEL

The primary model uses TBS class standing percentile as the dependent variable. Control variables include demographic information from individual training records at the Naval Academy. The variables include: Naval Academy Order of Merit Percentile, designation as a Naval Academy varsity letter winner, age at commissioning, race/ethnic information, academic major, prior enlisted or Marine enlisted experience, whether parents served in the military (service junior information) or whether parents served in the Marine Corps, whether the individual was a ground or aviation option at commissioning, whether the individual participated in the service selection process, the type of summer training in which the individual participated (i.e., OCS/Bulldog, Leatherneck, or no training) and a dummy variable representing participation in both the service assignment process and the Junior Officer Practicum/Capstone Course.

The primary multivariate model is specified as follows:

$TBS\ rank = f (Summer\ Training,\ Order\ of\ Merit\ Percentile,\ Prior\ Enlisted\ Experience,\ Race/Ethnicity,\ Academic\ Major,\ Parents'\ Military\ Experience,\ Commissioning\ Age,\ Naval\ Academy\ Varsity\ Athlete\ Status,\ Ground\ or\ Aviation\ Option,\ Service\ Selection\ Participant\ or\ Service\ Assignment/Capstone\ Course\ Participant).$

C. SECONDARY MODEL

The secondary model also uses TBS class standing percentile as the dependent variable. Control variables are identical to those used in the primary model with the exception of overall Naval Academy performance. The secondary model uses the cumulative military performance and cumulative academic Quality Point Ratings (QPR) instead of Order of Merit percentile to measure an individual's standing at the Naval Academy.

The secondary multivariate model is as follows:

$TBS\ rank = f (Summer\ Training,\ Cumulative\ Academic\ QPR,\ Cumulative\ Military\ Performance\ QPR,\ Prior\ Enlisted\ Experience,\ Race/Ethnicity,\ Academic\ Major,\ Parents'\ Military\ Experience,\ Commissioning\ Age,\ Naval\ Academy\ Varsity\ Athlete\ Status,\ Ground\ or\ Aviation\ Option,\ Service\ Selection\ Participant\ or\ Service\ Assignment/Capstone\ Course\ Participant)$

D. ANALYSES

The primary hypothesis is that cohorts completing OCS/Bulldog during summer training with the classes of 1989-1992 will be associated with better TBS performance, i.e., higher standing at TBS. The model also expects varsity letter winners, older age at commissioning, prior enlisted experience and prior Marine enlisted experience to be associated with better performance at TBS. Higher Order of Merit Percentile in the primary model or higher Military and Academic Quality Point Rating (QPR) in the secondary model should be indicative of high achieving individuals and also should be associated with higher standing at TBS. Individuals who participated in both the service assignment process and the Marine Capstone Course (classes of 1995-1999), represented by a single dummy variable, should be more qualified, better prepared and have higher

standings at TBS. Finally, the model hypothesizes that minorities and aviation guarantees will have lower standings at TBS.

The model hypothesizes that individuals with aviation guarantees will have lower standings at TBS, all else equal. The rationale is that aviation guarantees, unlike their ground counterparts, receive their Military Occupational Specialty (MOS) assignments before reporting to the Basic Officer Course and have less incentive to do well at TBS. Ground assignable officers, on the other hand, have an incentive to perform to the best of their abilities during the Basic Officer Course because they receive their MOS in accordance with their desires, the needs of the Marines Corps, and their staff platoon commander's performance assessment.

Instructors and staff at The Basic School debate the performance differences or perceived performance differences of ground assignable and aviation guarantee officers. Experience from The Basic School indicates that officers entering under the aviation option are less motivated to perform at TBS than their ground MOS competitors. This is because individuals with aviation options know from the first day of training at The Basic School that they are going to flight school after successful completion of the Basic Officer Course. Ground assignable officers, on the other hand, compete for specific ground Military Occupational Specialties (MOS's) based upon their performance at TBS. Appendix C contains the detailed regression results.

E. DATA ANALYSIS

Tables 21 and 22 contain the coefficients, t-statistics and significance levels for each of the predictors in the primary and secondary models. The R^2 value for the regression used in the primary model was .391 and The R^2 value for the regression used in the secondary model was .426. These values indicate that the models explain 39 and 43 percent of the variation in TBS class standing in each respective model. The regression analyses excluded seven variables in each model as the comparison categories. Of the 16 independent variables in the primary model, 10 were statistically significant at the 5 percent or better level. In the secondary model, 10 of the 17 independent variables were statistically significant at the 5 percent or better level.

Table 21. Ordinary Least Squares Estimates of TBS Class Standing Percentile
(Primary Model)

Variable	Coefficient	t-statistic	Sig
USNA Varsity Letter Winner	3.224	2.803	.005
Commissioning Age	-.545	-.762	.446
Ethnic Black	-8.784	-3.941	.000
Ethnic Hispanic	-4.906	-2.098	.036
Ethnic Other	-6.264	-2.250	.025
Parents with Non-Marine Corps Military Service	1.717	1.489	.137
Parents with Marine Corps Military Service	2.713	1.665	.096
Individuals with Non-Marine Prior Enlisted Service	-4.256	-2.583	.010
Individuals with Marine Prior Enlisted Service	10.466	3.466	.001
OCS/Bulldog Training Program	9.230	4.723	.000
No Marine-Specific Summer Training Program	-.111	-.055	.956
Aviation Option MOS	.694	.603	.547
USNA Technical Academic Major (Group 1)	5.830	4.579	.000
USNA Math/Sciences Academic Major (Group 2)	.368	.271	.786
Service Selection Participant	-5.273	-2.847	.004
USNA Order of Merit Percentile	.509	24.840	.000
Excluded/Comparison Variables			
Ethnic White			
Parents without Military Service			
Individuals without Prior Enlisted Service			
Leatherneck Training Program			
Ground Option MOS			
USNA Humanities Academic Major (Group 3)			
Service Assignment/Capstone Course Participant			
Intercept	44.299		
Adjusted R ²	.385		
Number of Observations	1615		
Mean of Dependent Variable	57.45		

Table 22. Ordinary Least Squares Estimates of TBS Class Standing Percentile
(Secondary Model)

Variable	Coefficient	t-statistic	Sig
USNA Varsity Letter Winner	3.476	3.103	.002
Commissioning Age	-.956	-1.374	.170
Ethnic Black	-8.669	-3.998	.000
Ethnic Hispanic	-4.490	-1.974	.049
Ethnic Other	-5.072	-1.873	.061
Parents with Non-Marine Corps Military Service	1.528	1.363	.173
Parents with Marine Corps Military Service	2.082	1.314	.189
Individuals with Non-Marine Prior Enlisted Service	-4.026	-2.508	.012
Individuals with Marine Prior Enlisted Service	10.047	3.415	.001
OCS/Bulldog Training Program	16.338	8.430	.000
No Marine-Specific Summer Training Program	4.512	2.292	.022
Aviation Option MOS	-.215	-.192	.848
USNA Technical Academic Major (Group 1)	4.138	3.305	.001
USNA Math/Sciences Academic Major (Group 2)	.269	.204	.838
Service Selection Participant	-5.135	-2.838	.005
Cumulative Military QPR	33.617	13.458	.000
Cumulative Academic QPR	15.559	8.891	.000
Excluded/Comparison Variables			
Ethnic White			
Parents without Military Service			
Individuals without Prior Enlisted Service			
Leatherneck Training Program			
Ground Option MOS			
USNA Humanities Academic Major (Group 3)			
Service Assignment/Capstone Course Participant			
Intercept	-75.028		
Adjusted R ²	.419		
Number of Observations	1615		
Mean of Dependent Variable	57.45		

The figures included in the remainder of this chapter contain graphs showing the differences between the sample means for each of the variables as well as their values in primary and secondary prediction models. The coefficients for each variable in the primary and secondary prediction models summed with the mean values of the comparison variable to provide the graphs included in the figures.

Comparisons of means in Chapter V showed that midshipmen completing the OCS/Bulldog training program had a 2.54 percentile point advantage in TBS class standing percentile compared to those completing the Leatherneck training program, while the 'No-Training' cohort mean standings were 3.81 percentile points lower than those of the Leatherneck training program. Figure 7 compares the sample mean TBS class standing percentiles for the summer training programs and the predicted TBS percentiles from Table 21 and Table 22. In the primary model, OCS/Bulldog gained an additional 6.69 percentile points over the sample mean value for the cohort, providing a 9.23 percentage point advantage over the Leatherneck training cohort after including the predictors in the model. Comparison of the Leatherneck and 'No-Training' cohorts in the primary model saw the 3.81 percentile point difference between the sample mean TBS standings for each cohort narrow to 0.11 percentile points. However, as noted in Table 21, the 'No-Training' coefficient was not statistically significant in the primary model.

In the secondary model, the OCS/Bulldog training cohort gained an additional 13.80 percentile points over its sample mean value, resulting in a 16.34 percentile point advantage over the Leatherneck training program cohort after including the predictors in the model. TBS Class standings for the 'No-Training' cohort gained an additional 8.32 percentile points over its sample mean value, providing the cohort a 4.51 percentile point advantage over the Leatherneck training cohort after the other predictors in the model were considered.

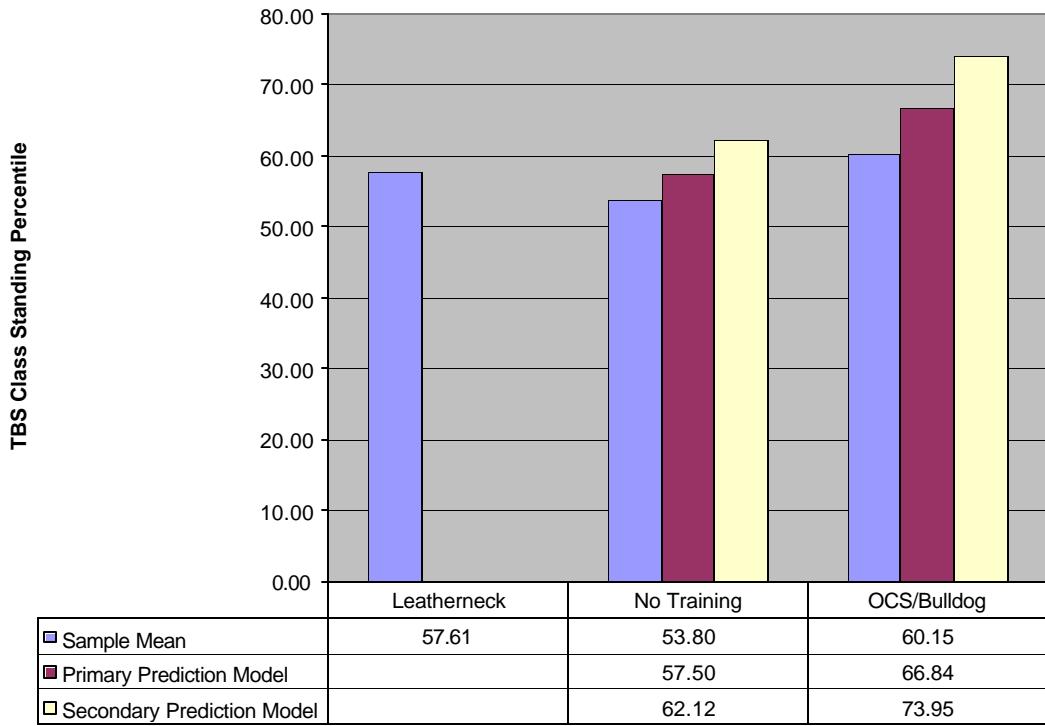


Figure 7. Sample and Predicted TBS Class Standing Percentile by Summer Training Program

Figure 8 compares the actual and model predicted TBS class standing percentiles for Naval Academy varsity letter winners and non-letter winners. The Naval Academy varsity letter winners gained 5.51 percentile points over the sample mean for the cohort, resulting in a 3.22 percentile point advantage over the non-letter winner cohort after including the predictors specified in the primary model. In the secondary model, varsity letter winners gained 5.77 percentile points above their mean score, providing a 3.48 percentile point advantage over non-letter winners.

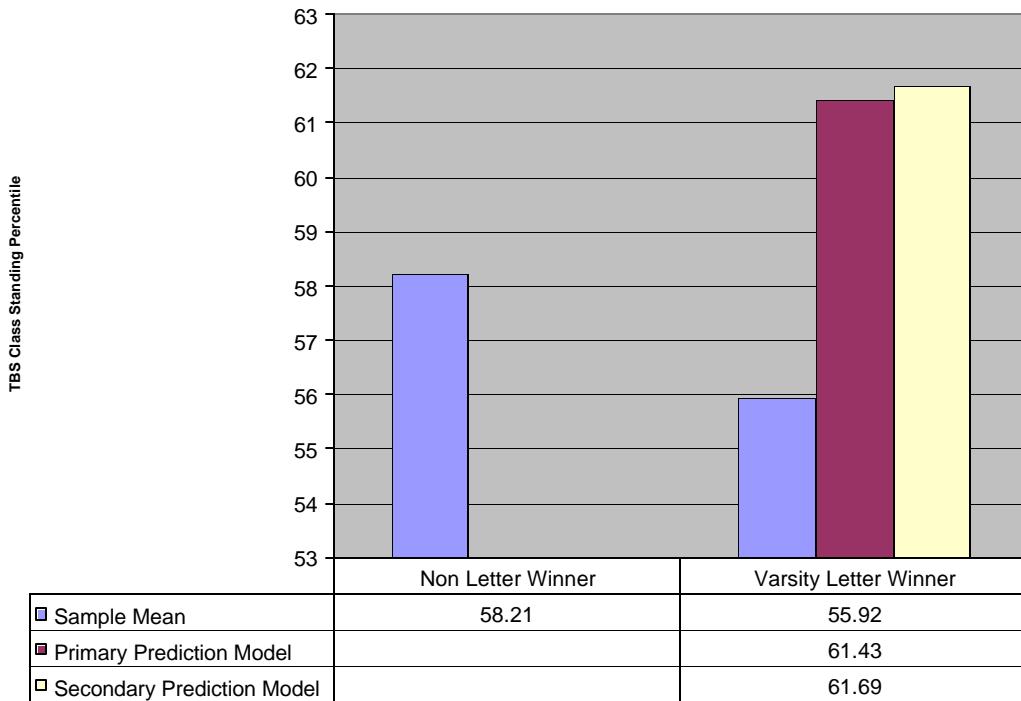


Figure 8. Sample and Predicted TBS Class Standing Percentile by Naval Academy Varsity Letter Winner Status

Empirical analysis showed that midshipmen with Marine prior enlisted experience maintained a mean TBS class standing 5.08 percentile points higher than those with no prior enlisted experience. Conversely, those with non-Marine prior enlisted experience had mean TBS class standings 16.54 percentile points lower than those with no prior enlisted experience. Figure 9 compares the sample mean and model predicted TBS class standing percentiles by prior enlisted experience. In the primary model, the performance advantage for those with Marine prior enlisted experience increased 5.39 percentile points above the sample mean for the cohort, resulting in a 10.47 percentile points advantage over those with no prior enlisted experience. The TBS standing deficit for those with non-Marine prior enlisted experience compared to those with no prior enlisted experience narrowed from a 16.54 percentile point difference between the mean values of the cohorts to 4.26 percentile points when the predictors specified in the model were included.

In the secondary model, the TBS class standings for those with Marine prior enlisted experience increased 4.97 percentile points above the sample mean for the cohort, resulting in a 10.05 percentile point advantage over those with no prior enlisted experience. The deficit for those with non-Marine prior enlisted experience compared to those with no prior enlisted experience narrowed from a 16.54 percentile point difference between the mean values for the cohorts to 4.03 percentile points in the secondary model.

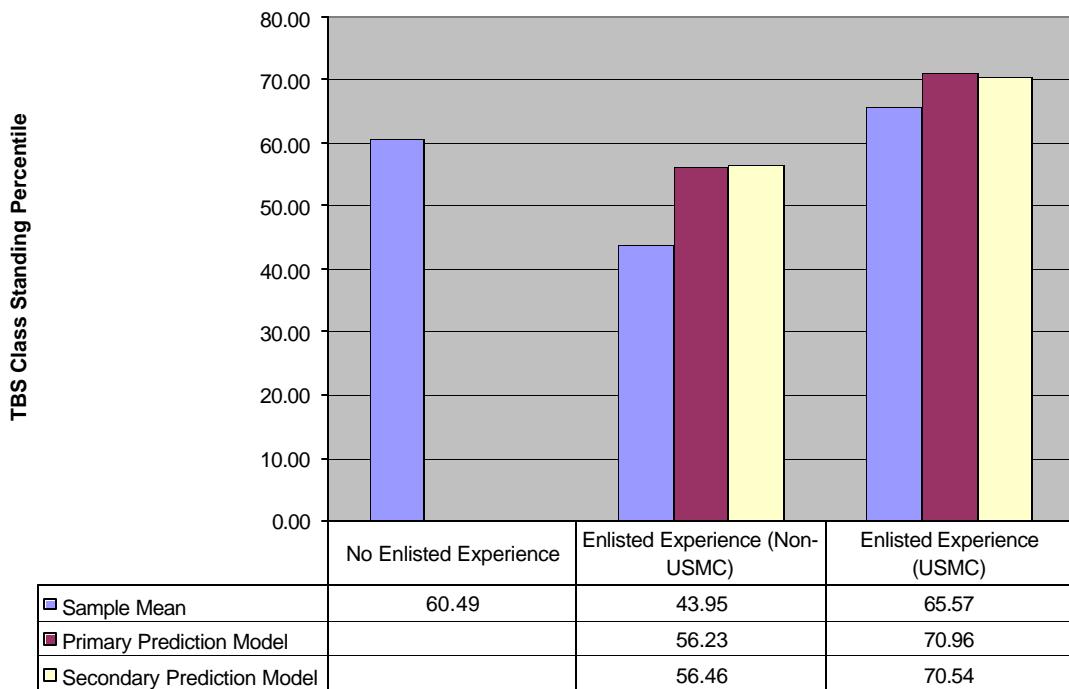


Figure 9. Sample and Predicted TBS Class Standing Percentile by Prior Enlisted Experience

Means comparisons in Chapter 5 showed that the average standing for blacks was 23.99 percentile points lower than that of whites. Hispanics and other minorities average standings were 14.44 and 13.62 percentile points lower than whites, respectively. Figure 10 compares the actual and model predicted TBS class standing percentiles by race/ethnic category. In the primary model blacks gained 15.21 percentile points over the sample mean for the cohort, narrowing the performance deficit with whites to 8.78 percentile points when the other predictors in the model were included. Hispanics and other minorities gained 9.53 and 7.36 percentile points respectively above their sample means

in the primary model. These gains narrowed the performance deficit with whites to 4.91 and 6.26 percentile points, respectively.

In the secondary model, blacks gained 15.32 percentile points over the sample mean for the cohort, leaving an 8.67 percentile point TBS standing deficit compared to whites. Hispanics and other minorities gained 9.95 and 8.55 percentile points respectively above the sample means for their cohorts in the secondary model. These gains narrowed the performance deficit with whites to 4.49 and 5.07 percentile points respectively; however, the coefficients for Hispanics and other minorities were not statistically significant in the secondary model.

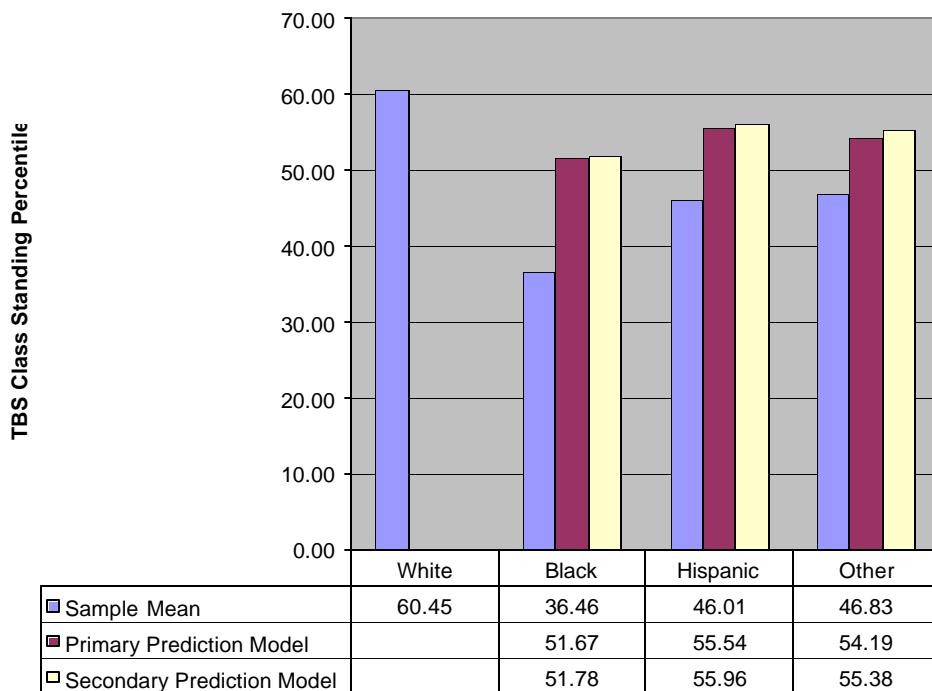


Figure 10. Sample and Predicted TBS Class Standing Percentile by Race/Ethnic Category

Means comparisons in Chapter V indicated that the aviation option cohort had a TBS class standing 8.38 percentile points higher than that of the ground option cohort. Figure 11 compares the actual and model predicted TBS class standing percentiles by aviation or ground option. The performance deficit for the ground option cohort

compared to the aviation option cohort narrowed from 8.38 percentile points to 0.69 percentile points in the primary model when the other predictors were included.

In the secondary model, the ground option cohort had a 0.22 percentile point advantage over the aviation option cohort. Coefficients for aviation and ground options were not statistically significant in the primary or secondary model.

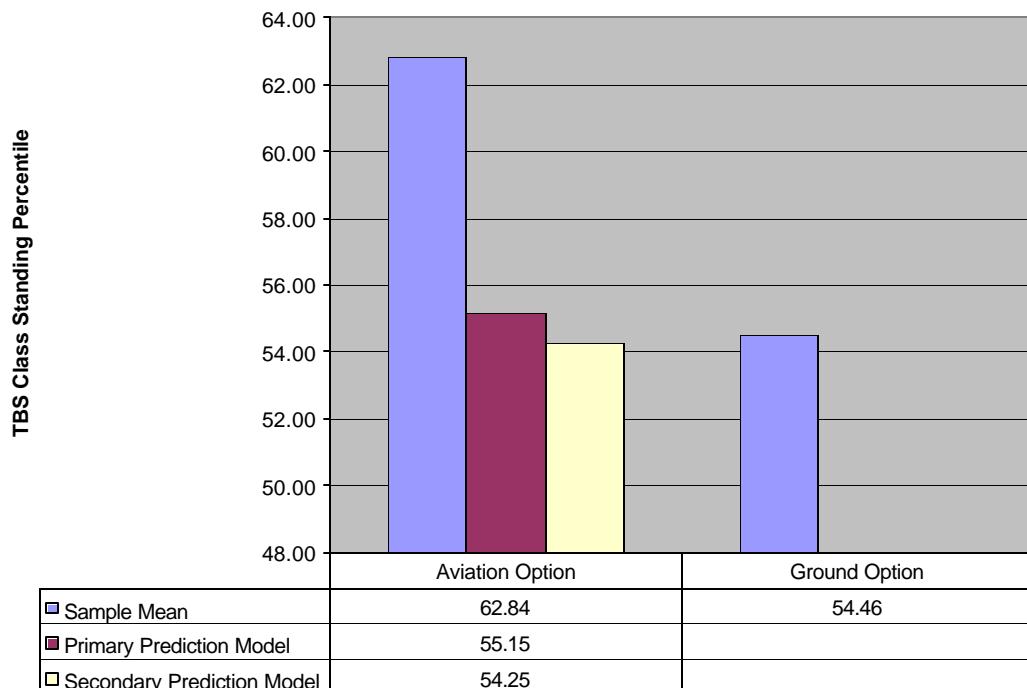


Figure 11. Sample and Predicted TBS Class Standing Percentile by Aviation or Ground Option

Empirical analysis indicated that midshipmen in Group 1 Academic Majors had a 10.57 percentile point advantage in TBS class standing percentile compared to those in Group 3 Academic Majors. Group 2 Academic Major sample means were 4.14 percentile points lower than those of the Group 3 Academic Majors. Figure 12 compares the actual and predicted TBS class standing percentiles for the academic major groups. In the primary model, predicted TBS class standings for Group 1 Academic Majors dropped 4.74 percentile points from the sample mean, narrowing the advantage over Group 3 Academic Majors to 5.83 percentile points after including the predictors in the model. Group 2 Academic Majors gained 4.51 percentile points over the sample mean for the cohort, providing a 0.37 percentile point advantage over Group 3 Academic

Majors; however, the coefficient for Group 2 Academic Majors was not statistically significant.

In the secondary model, predicted TBS class standings for Group 1 Academic Majors dropped 6.43 percentile points from the sample mean, narrowing the advantage over Group 3 Academic Majors to 4.14 percentile points. Group 2 Academic Majors gained 4.41 percentile points over the sample mean for the cohort, providing a 0.27 percentile point advantage over Group 3 Academic Majors. Like the primary model, the coefficient for Group 2 Academic Majors was not statistically significant.

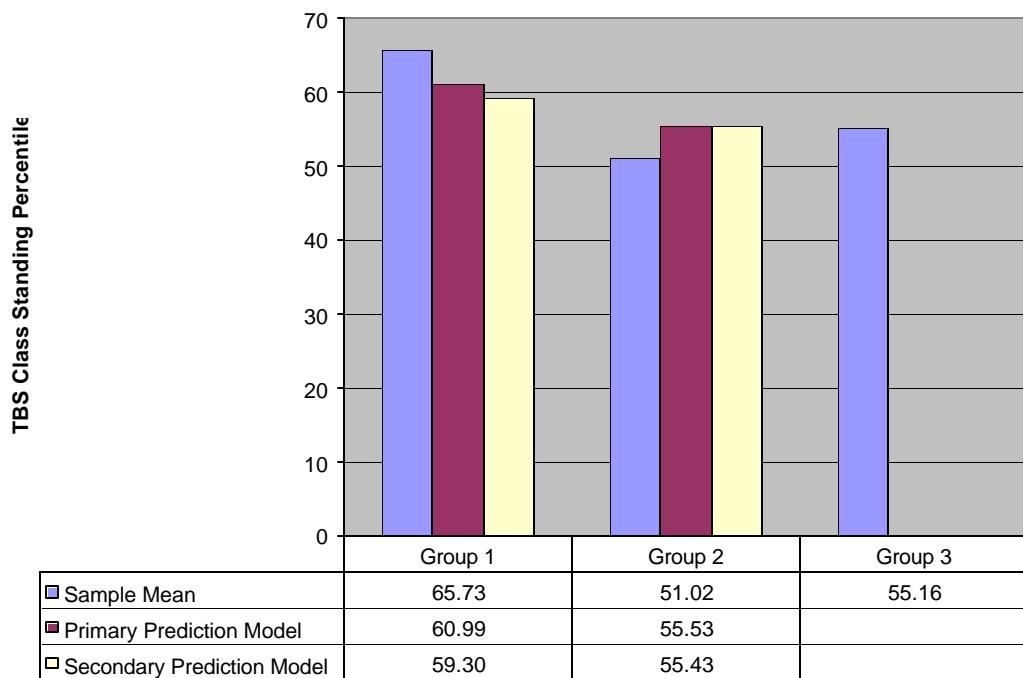


Figure 12. Sample and Predicted TBS Class Standing Percentile by Academic Major Groups

Empirical analysis indicated that midshipmen participating in the service selection process had a sample mean TBS class standing 2.9 percentile points lower than those participating in the service assignment process/capstone course. Figure 13 compares the actual and predicted TBS class standing percentiles for the service assignment/capstone course and service selection cohorts. In the primary model, TBS class standings for service selection participants were 5.27 percentile points lower than service assignment/capstone course participants. The coefficients in the primary model widened

the TBS performance gap an additional 2.37 percentile points above the difference in the mean standings for the cohorts when the other predictors were included.

In the secondary model, TBS class standings for service selection participants were 5.14 percentile points lower than service assignment/capstone course participants. The coefficients in the secondary model widened the TBS performance gap an additional 2.23 percentile points above the difference in the mean standings for the cohorts when the other predictors were included.

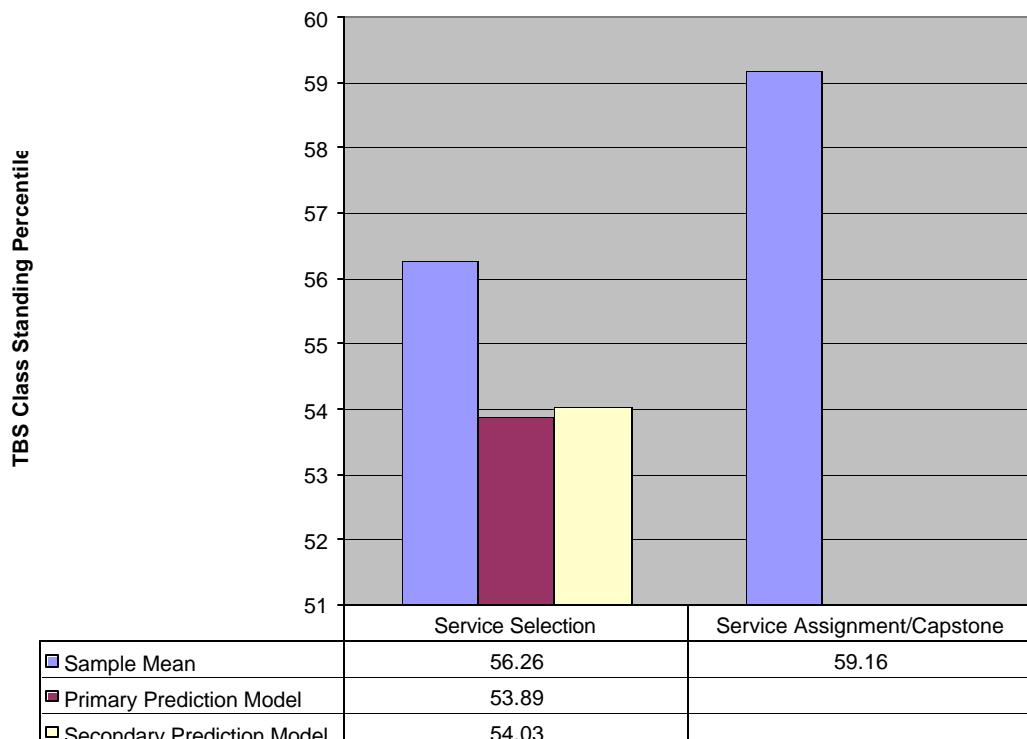
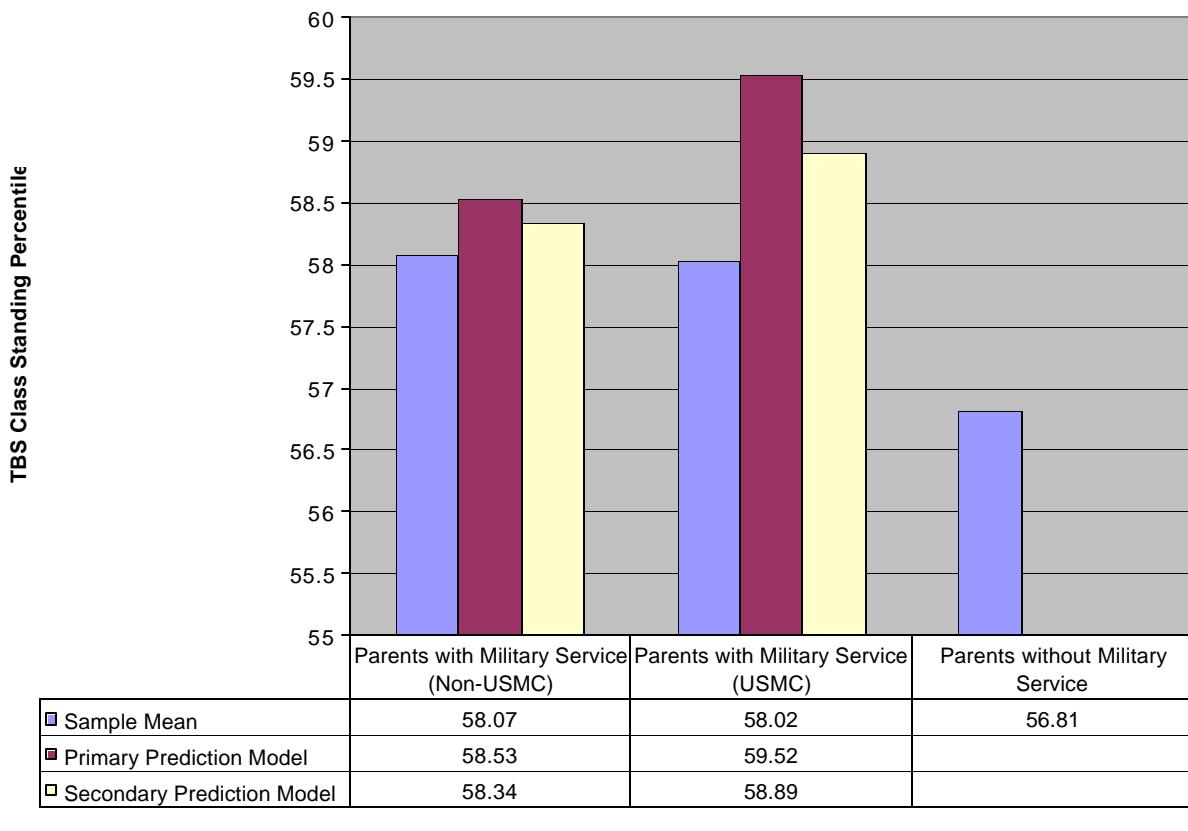


Figure 13. Sample and Predicted TBS Class Standing Percentile by Service Selection or Service Assignment/Capstone Course Participation

Empirical analysis indicated that mean standings for those with at least one parent who served in the Marine Corps were 1.21 percentile points higher than those with parents having no military service. Means for those with at least one parent who served in a branch of the service other than the Marine Corps were 1.26 percentile points higher than those with parents having no military service and 0.05 percentile points higher than those with at least one parent who served in the Marine Corps. Figure 14 compares the

actual and model predicted TBS class standing percentiles by parents' military service. In the primary model, TBS class standings for those with at least one parent who served in a branch of the service other than the Marine Corps gained 0.46 percentile points above the sample mean for the cohort, placing this cohort 1.72 percentile points above those with parents having no military service after the other predictors were included. TBS class standings for those with at least one parent who served in the Marine Corps gained 1.5 percentile points above the sample mean, placing this cohort 2.71 percentile points above those with parents having no military service and 0.99 percentile points above those with at least one parent who served in a branch of the service other than the Marine Corps.

In the secondary model, TBS class standings for those with at least one parent who served in a branch of the service other than the Marine Corps gained 0.27 percentile points above the sample mean for the cohort, placing this cohort 1.53 percentile points above those with parents having no military service after the other predictors were included. TBS class standings for those with at least one parent who served in the Marine Corps gained 0.87 percentile points above the cohort average, placing this cohort 2.08 percentile points above those with parents having no military service and 0.55 percentile points above those with at least one parent who served in a branch of the service other than the Marine Corps. The coefficients for these variables were not statistically significant in either model.



Sample and Predicted TBS Class Standing Percentile by Parents' Military Service

In the primary model, Order of Merit Percentile was the strongest predictor of success at The Basic School. The coefficient for Order of Merit Percentile was .51, which indicates that a one percentile point increase in Order of Merit Percentile at the Naval Academy results in a .51 percentile point increase in standing at The Basic School. In the secondary model, Cumulative Military QPR was the strongest predictor of TBS success, with a coefficient of 33.6. This value indicates that a one-point increase in military QPR results in a 33.6 percentile point increase in TBS class standing.

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VII. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

The primary model used Order of Merit as the measure of each individual's overall performance at the Naval Academy. The secondary model included the largest components used to compute the individual's overall standing at the Naval Academy: Cumulative Academic Quality Point Rating (QPR), and Cumulative Military QPR.

Tables 23 and 24 list the variables that were statistically significant in both the primary and secondary models. These variables were valid predictors of class standing at The Basic School. The variables listed in the left column are in descending order by unstandardized Beta coefficient. Unstandardized coefficients provide the change in TBS class standing percentile that is associated with a one-unit change in the selected variable or the change in standing in relation to the omitted or comparison variable in that group. Variables listed in the right column are in descending order by standardized Beta coefficient. Standardized Beta coefficients set all variables to the same scale and allow direct comparison of the importance of the variables in the models. Standardized Beta coefficients measure how the independent variables predict TBS class standing percentile when the other variables are held constant.

Table 23. Statistically Significant Predictors (Primary Model)

	Unstandardized Coefficient Precedence	Standardized Coefficient Precedence
1	Marine Prior Enlisted	Order of Merit Percentile
2	OCS/Bulldog Training	OCS/Bulldog Training
3	Ethnic Black	Group 1 (Engineering) Academic Major
4	Ethnic Other	Service Selection Participant
5	Group 1 (Engineering) Academic Major	Marine Prior Enlisted
6	Service Selection Participant	Ethnic Black
7	Ethnic Hispanic	Non-Marine Prior Enlisted
8	Non-Marine Prior Enlisted	USNA Varsity Letter Winner
9	USNA Varsity Letter Winner	Ethnic Other
10	Order of Merit Percentile	Ethnic Hispanic

Table 24. Statistically Significant Predictors (Secondary Model)

	Unstandardized Coefficient Precedence	Standardized Coefficient Precedence
1	Cumulative Military QPR	Cumulative Military QPR
2	OCS/Bulldog Training	OCS/Bulldog Training
3	Cumulative Academic QPR	Cumulative Academic QPR
4	Marine Prior Enlisted	Service Selection Participant
5	Ethnic Black	Ethnic Black
6	Service Selection Participant	Marine Prior Enlisted
7	No Marine Specific Training	Group 1 (Engineering) Academic Major
8	Group 1 (Engineering) Academic Major	No Marine Specific Training
9	Non-Marine Prior Enlisted	USNA Varsity Letter Winner
10	USNA Varsity Letter Winner	Non-Marine Prior Enlisted

1. Naval Academy Performance

Order of Merit provided the measure of Naval Academy performance in the primary model. The primary model predicted that a one percentile point increase in order of merit at the Naval Academy provided a .51 percentile point increase in class standing at The Basic School. Cumulative Military Quality Point Rating (QPR) and Cumulative Academic QPR were alternative measures of Naval Academy performance in the secondary model. Military QPR was the stronger predictor, as a one-point increase in military QPR provided a 34 percentile point increase in TBS class standing. Academic QPR was also a strong predictor, as a one-point increase in academic QPR provided a 16 percentile point increase in TBS class standing. Results for this group of variables were statistically significant in both models, indicating that order of merit, military QPR and academic QPR were valid predictors of class standing at The Basic School.

2. Summer Training Program

Results in the primary and secondary prediction models indicated that participation in the OCS/Bulldog summer training program had a significant positive effect on one's class standing at The Basic School, with a 9 point advantage in the primary model and a 16 point advantage in the secondary model compared to those who attended Leatherneck. TBS class standings for those participating in the Leatherneck training program were either slightly better or worse than those with no Marine-specific summer training, depending on which model was considered. Results of the Bulldog and Leatherneck variables were statistically significant in both models, indicating that these

summer training programs are a valid predictor of success for Naval Academy graduates at The Basic School. The 'No Training' variable was only significant in the secondary model, indicating that this variable was not as strong of a predictor as the other summer training variables.

Currently, the Naval Academy is the only Marine Commissioning program that does not complete any type of OCS screening. As outlined in a previous chapter, even Marine Enlisted Commissioning Program (MECEP) candidates, many of who have considerable enlisted experience, are required to successfully complete the OCS/Bulldog program. Many feel that the current policy creates a double standard for Naval Academy midshipmen who receive special treatment since they are the only ones who do not undergo the screening and evaluation process under the watchful eyes of Marine drill instructors. Many believe that all officers must begin their officer training at OCS and see OCS as the first step in the building block approach to officer training. Most see "attending OCS prior to TBS as leveling the playing field, promoting camaraderie, discipline, professionalism and a common bond" (Dunne, 2001).

Realistically, TBS provides the staple of Marine officer camaraderie, common training and baseline skills for all officers regardless of MOS. However, the stigma in many junior officers' minds of having someone "validate" OCS screening parallels the thought of having a select group of recruits that are not required to complete the rigors of boot camp training. Even if the Marine Corps is able to select the most qualified applicants from the academy, USNA graduates will have to overcome perceptions of favoritism amongst their peers at TBS and in the fleet. These perceptions may also influence the TBS standing of Naval Academy graduates since peer input constitutes a portion of each officer's leadership grade.

3. Ethnic Background

Results in the primary and secondary prediction models indicated that ethnic background was an important predictor of success at The Basic School. Minority performance in both models was between five and nine points lower than that of whites. These results paralleled those obtained in the North and Smith (1993) study; however, the magnitude of the performance deficit in this study was much smaller than the 4 to 22

point difference that North and Smith found. Results in the primary model were statistically significant for all ethnic groups indicating that ethnic background is a factor in success at The Basic School. Results in the secondary model were statistically significant for whites and blacks. These results indicate that ethnic background was less important than the other predictors included in the secondary model.

4. Prior Enlisted Experience

Prior enlisted experience served as a strong predictor in the primary and secondary models. Marine prior enlisted experience provided a 10-percentile point advantage over those without prior enlisted experience in both prediction models. Conversely, non-Marine prior enlisted experience provided a four-point deficit compared to those without prior enlisted experience in both models. Results for these variables were statistically significant in both models, indicating that enlisted experience is a factor in predicting the success of Naval Academy graduates at The Basic School. However, results for non-Marine prior enlisted experience are likely less accurate than those with prior Marine experience and those with no prior enlisted experience. The Naval Academy's Office of Institutional Research, Planning and Assessment (IR) provided the prior enlisted experience dataset. Members of each Naval Academy class self reported prior enlisted service information to IR during Induction Day of plebe summer. Although some midshipmen classified as having Navy prior enlisted experience had actual Navy fleet experience, many reported their sole experience at the Naval Academy Prep School as Navy prior enlisted experience. Conversely, there are fewer possibilities for error with those reporting Marine enlisted experience or those reporting no prior enlisted experience.

5. Varsity Letter Recipients

Both models predicted a positive TBS performance effect for Naval Academy varsity letter winners. Primary and secondary models provided a three-point advantage for letter winners over non-letter winners. Results of this variable were statistically significant in both models, indicating that participation in varsity athletics has a positive effect on an individual's performance after they depart the Naval Academy. The teamwork and camaraderie developed during athletic competition is similar to the synergy developed amongst individuals and small units during training. These findings

and the positive effect of athletics on performance reinforce the Naval Academy's pursuit of athletics and the associated time and resource expenditures.

6. Commissioning Age

The effect of commissioning age on performance at The Basic School was not statistically significant in either model. While results indicated that commissioning age had no effect on TBS performance, it is likely that age and prior enlisted experience are highly correlated.

7. Parents' Military Service

Both models included variables for military experience of each officer's mother or father and controlled for no military experience, Marine Corps experience and non-Marine Corps experience. Research indicated that a family tradition of service or growing up around the military provided a performance advantage at The Basic School. Results for families with non-Marine service and those with Marine Corps service were positive compared to those without military service; however, this group of variables was not statistically significant in either model.

8. Air Contracts

Both models included variables that controlled for individuals commissioned with aviation or ground options. It was assumed that individuals commissioned under the aviation option were less motivated to perform at The Basic School because they, unlike their ground option counterparts, had their military occupational specialties before reporting to TBS. Aviation options had a slight advantage in the primary model and a disadvantage in the secondary model, compared to ground option commissionees. These variables were not statistically significant in either model, indicating that aviation or ground option have no effect on one's standing at The Basic School.

9. Naval Academy Academic Major

Results in the primary and secondary prediction models indicated that individuals in Group 1 (Engineering) majors had higher performance scores at The Basic School compared to Group 3 (Humanities) majors. Group 1 majors had a six-point advantage in the primary model and a four-point advantage in the secondary model. The results for these variables were statistically significant in both models, indicating that being a

Group 1 major has a positive effect on an individual's performance at The Basic School. Results for Group 2 majors were not statistically significant in either model, indicating that being a Group 2 major was not a significant predictor of class standing at The Basic School in either model.

10. Service Selection

The model included variables to control for the Naval Academy's shift from the service selection process to that of service assignment. The change to the service assignment procedure also coincided with the Academy's implementation of the Junior Officer Practicum or Capstone Course; therefore the service assignment variable included both changes. The primary and secondary models predicted that TBS standings for those entering the Marine Corps under the service selection process (classes of 1988-1994) were five points lower than those entering under the service assignment process and capstone course (classes of 1995-1999). Results of these variables were statistically significant in both models, indicating that the difference found between these groups were valid predictors of class standing at The Basic School.

Under the service assignment process, midshipmen performance combined with warfare community interviews provided Naval Academy staff with a mechanism to screen applicants rather than adhering to the strict order of merit sequence formerly used in the service selection process. This change allowed Academy staff to look at the whole person. It also provided greater input into determining the suitability of individuals for desired warfare communities. Service assignment allowed the Marine Corps selection board the latitude to select qualified individuals for commissioning in the Marine Corps rather than allowing individuals to select the Marine Corps, as was the case under service selection.

The service assignment process, starting with the class of 1995, alleviated some of the concerns over returning to the conditions that drove Secretary Webb to implement successful completion of OCS/Bulldog for Naval Academy midshipmen seeking Marine Corps commissions. The assignment process allowed a selection board to assess the record of each applicant and his or her suitability for Marine Corps service. Input to the selection process included the applicant's participation in voluntary training activities

such as Leatherneck, the Semper Fidelis Society, past or current Marine Corps affiliation as well as a service selection interview with a separate team of Navy and Marine officers (Gannon, 2000, p. 155-156). This process provided the Marine Corps, as well as the other Naval Warfare Communities, with a broadened opportunity to screen applicants and select those that were best qualified for service in that particular community.

B. RESEARCH QUESTIONS

1. What years provided the best overall performance of Naval Academy graduates at The Basic School?

The results of this thesis indicated that Marine specific training makes a difference in the performance of Naval Academy graduates at The Basic School. Analysis in this thesis assumed that all Naval Academy accessions completed the training programs that were required during their respective summer training sessions. The models assumed that accessions from the classes of 1989 through 1992 completed the OCS/Bulldog training program although there were a small number of midshipmen that did not complete the required training due to various conflicts such as summer school or athletic commitments. The prediction models made the same assumptions for individuals that were eligible for training during the periods when 'No Training' and Leatherneck programs were in effect. Midshipmen who were unable to complete the requisite training with their classes received special consideration under the Memorandum of Agreement between the Chief of Naval Personnel and the Deputy Chief of Staff for Manpower and Reserve Affairs of the Marine Corps that was in effect at the time of service selection or service assignment.

Comparison of means showed that those participating in the OCS/Bulldog training program had a 2.54 percentile point advantage in class standing at The Basic School compared to those completing Leatherneck Training and a 6.35 percentile point advantage compared to the 'No-Training' cohort.

In the primary prediction model, TBS class standings for OCS/Bulldog participants were 9.23 percentile points higher than those in the Leatherneck training program. In the secondary prediction model, TBS class standings for OCS/Bulldog

participants were 16.34 percentile points higher than those in the Leatherneck training program. The results of this analysis indicate that participation in the OCS/Bulldog program (classes of 1989-1992) provided a clear advantage in class standing at The Basic School after controlling for other factors. The OCS/Bulldog cohort had higher mean TBS class standings, and higher TBS class standings as predicted from the regression, than the Leatherneck and 'No Training' cohorts.

2. What factors at the Naval Academy are associated with strong performance at The Basic School?

Based upon the standardized Beta coefficients in the primary model, Order of Merit Percentile, OCS/Bulldog Training, Group 1 (Engineering) Major, Service Selection Participants, and Marine Prior Enlisted Experience were the top five predictors of class standing at The Basic School.

Based upon the standardized Beta coefficients in the secondary model, Cumulative Military QPR, OCS/Bulldog Training, Cumulative Academic QPR, Service Selection Participant, and Ethnic Black were the top five predictors of class standing at The Basic School.

Overall Naval Academy performance was the strongest predictor of class standing at The Basic School in both prediction models. Coefficients estimates of these variables were sizeable in both models primarily because of the similarity between Naval Academy Order of Merit and TBS class standing in the primary model as well as the similarity between Military QPR/Academic QPR and TBS class standing in the secondary model. Additionally, high Orders of Merit, Military QPRs or Academic QPRs at the Naval Academy are indicative of high performing individuals. These high performing individuals are likely to excel in any environment.

Participation in the OCS/Bulldog program was significant in both prediction models. The standardized Beta coefficients in both cases placed this variable second only to Naval Academy performance inputs. These results indicate that participation in the OCS/Bulldog program was a very strong predictor of TBS class standing.

Naval Academy performance was the strongest predictor for success at The Basic School. The primary model used Naval Academy Order of Merit Percentile to gauge

Naval Academy performance, while the secondary model used Cumulative Military Quality Point Rating (QPR) and Cumulative Academic QPR. Order of Merit Percentile was the strongest predictor in the primary model, while Military QPR was the strongest predictor in the secondary model.

3. Which training program best prepared Naval Academy Midshipmen for success at The Basic School?

Although each summer training program had individuals in the top and bottom of their TBS classes, the cohort completing OCS/Bulldog training had a higher mean standing than the other training programs. The performance advantage for the OCS/Bulldog cohort increased significantly after including the predictor variables specified in the primary and secondary models. As outlined above, these results indicate that participation in the OCS/Bulldog training program provided Naval Academy graduates the greatest edge in performance at The Basic School, compared to the other programs examined.

4. How can performance of future Naval Academy graduates at The Basic School be improved?

Although the results of this analysis indicated that attending OCS/Bulldog provided a significant performance advantage compared to the other training programs examined, the current programs and service assignment policies provide the foundation for improved performance at The Basic School. The Naval Academy produces top quality junior officers who are prepared for the challenges of the future. The Marine Corps must appeal to and seek the high quality midshipmen in the Brigade. The recommendations that follow outline some of the issues for consideration.

C. RECOMMENDATIONS

The Naval Academy should reassess its summer training programs and consider broadening Marine-specific summer training programs, as many in place have a Navy-specific training bias. Providing a Marine-specific or Navy-specific summer training pipeline after mandated third-class summer training would allow midshipmen to pursue summer training consistent with their service desires. Midshipmen could complete the required enlisted cruise and the exposure training provided by the Professional Training

for Midshipmen (PROTRAMID) program during their third-class summer. This cycle would provide midshipmen exposure to the major warfare communities and allow them to decide which pipeline they wish to pursue for "elective" training during first and second-class summers.

The Marine Corps would benefit from this cycle by allowing Marine-specific training for midshipmen much earlier than is currently possible. The introduction and exposure to the Marine Corps provided by PROTRAMID would then serve as a reference for encouraging midshipmen to pursue the Marine-specific training pipeline in future summers. This would then allow midshipmen to attend Leatherneck training as early as second-class summer or as late as first-class summer. The increased time in the Marine-specific training pipeline provided by this concept would provide a broader opportunity to educate, train and evaluate those interested in the Marine Corps. This option has a couple of advantages. First, it allows the Marine Corps to identify those interested in Marine Corps service earlier, which allows more observation and evaluation time than is currently available. Second, it allows more options and opportunities to send midshipmen to Fleet Marine Force units for summer training. This allows the Academy to get midshipmen to Fleet Marine Force units during both first-class and second-class summer.

Introduction of Fleet Marine Force cruises with ground and aviation units will expose midshipmen to the daily life as well as the responsibilities and leadership opportunities that Marine lieutenants enjoy. Exposure to the quality and talent of junior Marines, Non-Commissioned Officers and Staff Non-Commissioned Officers during the Fleet Marine Force cruise will certainly provide a point of reference to help midshipmen determine their service assignment desires.

The Leatherneck program provides Naval Academy midshipmen with many of the skills acquired by their counterparts at Officer Candidates School (OCS) but does so without the stress provided by Marine Drill Instructors. Although Leatherneck provides a screening and evaluation tool in the service assignment process, it does so without the stress associated with OCS. Leatherneck's course of instruction is, in many areas, a scaled down version of the Basic Officer Course syllabus at The Basic School. It teaches

midshipmen the basic tactics, knowledge and field-skills necessary for success while providing an exposure to Marine leadership that facilitates the transition from the Naval Academy to Marine Corps culture. Because the academic, tactical and field skills knowledge of Leatherneck graduates is comparable to that of an Officer Candidates School graduate, the advantage the OCS/Bulldog cohort maintains over the Leatherneck cohort likely relates to peer bias at The Basic School. While academic and military skill proficiency contributes to one's standing, leadership or command evaluations provide 36 percent of an officer's standing at TBS. As outlined in Chapter 2, peer input determines ten percent of an individual's leadership or command evaluation. Participation in the OCS/Bulldog program removed much of the peer bias toward Naval Academy graduates since all officers completed one of the screening and evaluation programs at OCS. With the elimination of OCS/Bulldog and the introduction of Leatherneck, the Naval Academy again became the only commissioning source that did not complete OCS. This difference likely accounts for the performance margin of the OCS/Bulldog cohort over the Leatherneck group due to the ongoing negative bias of officers from other commissioning sources towards Naval Academy graduates.

Although the goals of the Leatherneck program and OCS screening programs are different, the evaluations from Leatherneck provide insight to each individual's suitability for commissioning in the Marine Corps. The evaluations obtained during Leatherneck, Fleet Marine Force cruises or future Marine-specific summer training programs combined with the Academy's shift from service selection to service assignment provides the Marine Corps with the ability to adequately screen Naval Academy Marine Corps hopefuls. As long as the pool of midshipmen wanting to serve in the Marine Corps continues to exceed the number of available Marine Corps commissions by an acceptable margin, the Marine Corps will be able to select top quality and highly competitive individuals who will excel at The Basic School and beyond. The key element is to get the attention of top performing midshipmen earlier and expose them to the responsibility, leadership and opportunities they will enjoy as newly commissioned officers.

Continued improvement of the Leatherneck program and capstone courses as well as development of advanced Marine-specific training opportunities during first-class summer will prepare midshipmen for service in the Marine Corps. Experience gained

through summer training and military environment immersion combined with the Marine-specific summer training pipeline and capstone courses will provide Naval Academy graduates with the foundation for success. Although OCS/Bulldog likely reduced peer bias at The Basic School, Naval Academy graduates will confront this challenge regardless of their training.

Participation in the OCS/Bulldog and Leatherneck programs increased Naval Academy graduates' preparation for TBS and boosted finishing order in the aggregate; however, minority status offsets many of these gains. Although not specifically evaluated in this analysis, Naval Academy performance (Order of Merit Percentile, Cumulative Academic QPR, Cumulative Military QPR) for minorities was lower than for the majority. Because of the strong relationship between Naval Academy performance and performance at The Basic School, minorities were expected to have lower class standings at The Basic School. As outlined in Chapter 6, the performance deficit for blacks was approximately 9 percentile points in both prediction models. While this is a sizeable difference, it is much smaller than the 22-percentile point deficit that North and Smith (1993) found across all commissioning sources. This indicates that Naval Academy minorities are far better prepared for Marine Corps service than their counterparts from other commissioning sources.

Another factor in lower minority performance, as North and Smith (1993) suggest, is the stress of small numbers. Commonly, companies at The Basic School have only a few minority officers because of the small number of minorities commissioned in the Marine Corps each year. Minorities are less able to blend in; therefore, they receive greater recognition and attention, adding stress to the situation (North and Smith, 1993, p.49). Like most training or school environments, voluntary segregation occurs at The Basic School. Because of the natural segregation and the small numbers of minorities, white officers are more likely to have an advantage in the peer evaluation portion of leadership grades (North and Smith, 1993, p.51).

To combat these trends, the Marine Corps should focus on recruiting minorities from the upper echelons of the Brigade of Midshipmen. While competition for these individuals is keen among warfare communities, successful recruiting in this area will

provide higher achieving officers at the beginning of training at The Basic School. Although operationally difficult, the Naval Academy and the Marine Corps should consider assignment of larger numbers of minorities to each Basic School class rather than allowing a more even distribution of minorities across all available classes. Larger quantities of better-qualified minority officers from the Naval Academy and other commissioning sources assigned to one or two classes should combat the issue of small numbers as well as provide higher achieving individuals to start with.

D. RECOMMENDATIONS FOR FUTURE RESEARCH

This thesis examined Naval Academy graduate performance at The Basic School primarily as a function of summer training program. Control variables were included in the prediction models to control for variations between summer training groups. As a result of the findings and of the prediction models, the following topics are suggestions for future research.

- Interviews with officer students and instructors at The Basic School to determine their perceptions and opinions of Naval Academy graduates and the effect of these opinions on peer rankings/leadership grades.
- Interviews with Naval Academy graduates prior to and following the Basic Officer Course to determine a performance profile at The Basic School.
- A Comparison of Naval Academy summer training programs and Naval Reserve Officer Training Corps (NROTC) Marine option summer training programs.
- A comparison of the training, evaluation, and selection process provided by the Leatherneck summer training program and the service assignment process with the screening and evaluation process conducted at Officer Candidates School.
- An analysis of Naval Academy graduate overall performance at The Basic School from 1980 to present.
- An analysis of Naval Academy graduate performance at The Basic School and predictors of success by Naval Academy academic major.
- An analysis of Naval Academy graduate Leadership performance at The Basic School as a function of Leadership training and experience at the Naval Academy.

- An analysis of Naval Academy graduate academic performance at The Basic School.
- An analysis of Naval Academy graduate military skills performance at The Basic School.

APPENDIX A. DATASET FREQUENCY COUNTS AND FREQUENCY ANALYSES

Table A-1. Dataset Variable Frequency Counts Part 1

Statistics

	GRAD_YR	VAR_LTR	AGECOMM	ETHNIC	ETHWHITE	ETHBLACK
N	Valid	1615	1615	1615	1615	1615
	Missing	0	0	0	0	0

Table A-2. Dataset Frequency Counts Part 2

Statistics

	ETHHISP	ETHOTHER	SVCJRCOM	SVCJR	SVCJRMAR	SVCJRNON
N	Valid	1615	1615	1615	1615	1615
	Missing	0	0	0	0	0

Table A-3. Dataset Frequency Counts Part 3

Statistics

	PRIOR	PRISVC	PRIMARNE	PRINONE	GENDER	TBSPCTL
N	Valid	1615	1615	1615	1615	1615
	Missing	0	0	0	0	0

Table A-4. Dataset Frequency Counts Part 4

Statistics

	SUMTRN	BULLDOG	LTRNECK	NOTRNG	CONTRACT	AIRCONT
N	Valid	1615	1615	1615	1615	1615
	Missing	0	0	0	0	0

Table A-5. Dataset Frequency Counts Part 5

Statistics

	GRNDMOS	AC_MAJOR	MAJGROUP	GROUP1	GROUP2	GROUP3
N	Valid	1615	1615	1615	1615	1615
	Missing	0	0	0	0	0

Table A-6. Dataset Frequency Counts Part 6

Statistics

	SERVSEL	SERVASMT	OOMPCTL	CUM_MQPR	CUM_AQPR
N	Valid	1615	1615	1615	1615
	Missing	0	0	0	0

Table A-7. Naval Academy Graduating Class (grad_yr) Frequency Table

GRAD_YR

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1988	173	10.7	10.7
	1989	106	6.6	17.3
	1990	92	5.7	23.0
	1991	93	5.8	28.7
	1992	139	8.6	37.3
	1993	182	11.3	48.6
	1994	167	10.3	58.9
	1995	109	6.7	65.7
	1996	144	8.9	74.6
	1997	147	9.1	83.7
	1998	136	8.4	92.1
	1999	127	7.9	99.9
	Total	1615	100.0	100.0

Table A-8. Naval Academy Varsity Letter Winner (var_ltr) Frequency Table

VAR_LTR

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1081	66.9	66.9
	1	534	33.1	33.1
	Total	1615	100.0	100.0

Table A-9. Commissioning Age (agecomm) Frequency Table

AGECOMM

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21	320	19.8	19.8
	22	828	51.3	71.1
	23	303	18.8	89.8
	24	86	5.3	95.2
	25	78	4.8	100.0
	Total	1615	100.0	100.0

Table A-10. Ethnicity (ethnic) Frequency Table

ETHNIC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Black	110	6.8	6.8	6.8
	White	1349	83.5	83.5	90.3
	Hispanic	94	5.8	5.8	96.2
	Other	62	3.8	3.8	100.0
	Total	1615	100.0	100.0	

Table A-11. Ethnic White (ethwhite) Frequency Table

ETHWHITE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	266	16.5	16.5	16.5
	1	1349	83.5	83.5	100.0
	Total	1615	100.0	100.0	

Table A-12. Ethnic Black (ethblack) Frequency Table

ETHBLACK

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1505	93.2	93.2	93.2
	1	110	6.8	6.8	100.0
	Total	1615	100.0	100.0	

Table A-13. Ethnic Hispanic (ethhisp) Frequency Table

ETHHISP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1521	94.2	94.2	94.2
	1	94	5.8	5.8	100.0
	Total	1615	100.0	100.0	

Table A-14. Ethnic Other (ethother) Frequency Table

ETHOTHER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1553	96.2	96.2	96.2
	1	62	3.8	3.8	100.0
	Total	1615	100.0	100.0	

Table A-15. Parents Military Experience (svcjrcm) Frequency Table

SVCJRCM

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Parents with no Service	783	48.5	48.5	48.5
	Parents with Service (Non-USMC)	611	37.8	37.8	86.3
	Parents with Service (USMC)	221	13.7	13.7	100.0
	Total	1615	100.0	100.0	

Table A-16. Parents with Non-Marine Corps Military Experience (svcjrn) Frequency Table

SVCJRN

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1004	62.2	62.2	62.2
	1	611	37.8	37.8	100.0
	Total	1615	100.0	100.0	

Table A-17. Parents with Marine Corps Military Experience (svcjrmr) Frequency Table

SVCJRMAR

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1394	86.3	86.3	86.3
	1	221	13.7	13.7	100.0
	Total	1615	100.0	100.0	

Table A-18. Parents without Military Experience (svcjrn) Frequency Table

SVCJRN

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	832	51.5	51.5	51.5
	1	783	48.5	48.5	100.0
	Total	1615	100.0	100.0	

Table A-19. Prior Enlisted Experience (prior) Frequency Table

PRIOR

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No Prior Svc	1215	75.2	75.2	75.2
	Prior Svc (Non-USMC)	321	19.9	19.9	95.1
	Prior Svc (USMC)	79	4.9	4.9	100.0
	Total	1615	100.0	100.0	

Table A-20. Prior Enlisted Service (Non-Marine) (prisvc) Frequency Table

PRISVC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1294	80.1	80.1	80.1
	1	321	19.9	19.9	100.0
	Total	1615	100.0	100.0	

Table A-21. Prior Enlisted Service (Marine) (primarne) Frequency Table

PRIMARNE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1536	95.1	95.1	95.1
	1	79	4.9	4.9	100.0
	Total	1615	100.0	100.0	

Table A-22. No Prior Enlisted Service (prinone) Frequency Table

PRINONE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	400	24.8	24.8	24.8
	1	1215	75.2	75.2	100.0
	Total	1615	100.0	100.0	

Table A-23. Gender (gender) Frequency Table

GENDER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	1615	100.0	100.0	100.0

Table A-24. Naval Academy Summer Training Program (sumtrn) Frequency Table

SUMTRN

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Leatherneck	830	51.4	51.4	51.4
	No Training	355	22.0	22.0	73.4
	Bulldog	430	26.6	26.6	100.0
	Total	1615	100.0	100.0	

Table A-25. OCS/Bulldog Summer Training Program (bulldog) Frequency Table

BULLDOG

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1185	73.4	73.4	73.4
	1	430	26.6	26.6	100.0
	Total	1615	100.0	100.0	

Table A-26. Leatherneck Summer Training Program (ltrneck) Frequency Table

LTRNECK

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	785	48.6	48.6	48.6
	1	830	51.4	51.4	100.0
	Total	1615	100.0	100.0	

Table A-27. No Marine-Specific Summer Training Program (notrng) Frequency Table

NOTRNG

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1260	78.0	78.0	78.0
	1	355	22.0	22.0	100.0
	Total	1615	100.0	100.0	

Table A-28. Aviation/Ground Option (contract) Frequency Table

CONTRACT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Air	576	35.7	35.7	35.7
	Ground	1039	64.3	64.3	100.0
	Total	1615	100.0	100.0	

Table A-29. Aviation Option (aircont) Frequency Table

AIRCONT

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	1039	64.3	64.3	64.3
1	576	35.7	35.7	100.0
Total	1615	100.0	100.0	

Table A-30. Ground Option (grndmos) Frequency Table

GRNDMOS

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	576	35.7	35.7	35.7
1	1039	64.3	64.3	100.0
Total	1615	100.0	100.0	

Table A-31. Naval Academy Academic Major (ac_major) Frequency Table

AC_MAJOR

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aeronautical Engr	93	5.8	5.8	5.8
	Electrical Engr	20	1.2	1.2	7.0
	General Engr	89	5.5	5.5	12.5
	Mechanical Engr	111	6.9	6.9	19.4
	Naval Architecture	23	1.4	1.4	20.8
	Ocean Engr	63	3.9	3.9	24.7
	Systems Engr	94	5.8	5.8	30.5
	Marine Engr	13	.8	.8	31.3
	Economics	131	8.1	8.1	39.4
	Political Science	265	16.4	16.4	55.9
	English	86	5.3	5.3	61.2
	History	229	14.2	14.2	75.4
	Chemistry	15	.9	.9	76.3
	Computer Science	85	5.3	5.3	81.5
	General Science	90	5.6	5.6	87.1
	Mathematics	77	4.8	4.8	91.9
	Oceanography	91	5.6	5.6	97.5
	Physics	24	1.5	1.5	99.0
	Physical Science	16	1.0	1.0	100.0
	Total	1615	100.0	100.0	

Table A-32. Naval Academy Academic Major Group (majgroup) Frequency Table

MAJGROUP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	506	31.3	31.3	31.3
	2	398	24.6	24.6	56.0
	3	711	44.0	44.0	100.0
	Total	1615	100.0	100.0	

Table A-33. Naval Academy Group-1 Academic Major (group1) Frequency Table

GROUP1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1109	68.7	68.7	68.7
	1	506	31.3	31.3	100.0
	Total	1615	100.0	100.0	

Table A-34. Naval Academy Group-2 Academic Major (group2) Frequency Table

GROUP2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1217	75.4	75.4	75.4
	1	398	24.6	24.6	100.0
	Total	1615	100.0	100.0	

Table A-35. Naval Academy Group-3 Academic Major (group3) Frequency Table

GROUP3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	904	56.0	56.0	56.0
	1	711	44.0	44.0	100.0
	Total	1615	100.0	100.0	

Table A-36. Naval Academy Service Selection Participant (servsel) Frequency Table

SERVSEL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	663	41.1	41.1	41.1
	1	952	58.9	58.9	100.0
	Total	1615	100.0	100.0	

Table A-37. Naval Academy Service Assignment and Junior Officer Practicum/Capstone Course Participant (servasmt) Frequency Table

SERVASMT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	952	58.9	58.9	58.9
	1	663	41.1	41.1	100.0
	Total	1615	100.0	100.0	

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APPENDIX B. EMPIRICAL DATA ANALYSIS

Table B-1. TBS Class Standing Percentile by Summer Training Program

Case Summaries

TBSPCTL

SUMTRN	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Leatherneck	830	0	100	57.61	26.90	723.652
No Training	355	1	100	53.80	26.60	707.509
Bulldog	430	0	100	60.15	27.52	757.337
Total	1615	0	100	57.45	27.07	733.048

Table B-2. TBS Class Standing Percentile by Summer Training Program ANOVA

ANOVA

TBSPCTL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7876.350	2	3938.175	5.402	.005
Within Groups	1175263	1612	729.071		
Total	1183139	1614			

Table B-3. TBS Class Standing Percentile by Varsity Letter Winners

Case Summaries

TBSPCTL

VAR_LTR	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Non-Letter Winner	1081	0	100	58.21	27.54	758.482
Letter Winner	534	0	100	55.92	26.06	679.364
Total	1615	0	100	57.45	27.07	733.048

Table B-4. TBS Class Standing Percentile by Varsity Letter Winners Independent Samples T-Test

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
TBSPCTL	Equal variances assumed	3.350	.067	1.601	1613	.110	2.29	1.43	-.52	5.10
				1.631	1115.576	.103	2.29	1.40	-.46	5.05

Table B-5. Ages at Commissioning by Summer Training Program

Case Summaries

AGECOMM

SUMTRN	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Leatherneck	830	21	25	22.30	1.01	1.030
No Training	355	21	25	22.16	.89	.796
Bulldog	430	21	25	22.20	1.01	1.012
Total	1615	21	25	22.24	.99	.976

Table B-6. Ages at Commissioning by Summer Training Program ANOVA

ANOVA

AGECOMM

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.762	2	2.881	2.959	.052
Within Groups	1569.541	1612	.974		
Total	1575.303	1614			

Table B-7. TBS Class Standing Percentile by Age at Commissioning

Case Summaries

TBSPCTL

AGECOMM	N	Minimum	Maximum	Mean	Std. Deviation	Variance
21	320	0	100	63.34	26.50	702.025
22	828	0	100	58.24	26.38	695.994
23	303	0	100	50.23	27.07	732.942
24	86	0	98	51.35	26.74	715.006
25	78	1	100	59.60	30.26	915.527
Total	1615	0	100	57.45	27.07	733.048

Table B-8. TBS Class Standing Percentile by Age at Commissioning ANOVA

ANOVA

TBSPCTL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	30986.701	4	7746.675	10.825	.000
Within Groups	1152153	1610	715.623		
Total	1183139	1614			

Table B-9. TBS Class Standing Percentile by Prior Enlisted Experience

Case Summaries

TBSPCTL

PRIOR	N	Minimum	Maximum	Mean	Std. Deviation	Variance
No Prior Svc	1215	0	100	60.49	25.96	674.130
Prior Svc (Non-USMC)	321	0	99	43.95	26.70	712.656
Prior Svc (USMC)	79	3	100	65.57	28.15	792.410
Total	1615	0	100	57.45	27.07	733.048

Table B-10. TBS Class Standing Percentile by Prior Enlisted Experience ANOVA

ANOVA

TBSPCTL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	74887.546	2	37443.773	54.464	.000
Within Groups	1108252	1612	687.501		
Total	1183139	1614			

Table B-11. TBS Class Standing Percentile by Ethnic Category

Case Summaries

TBSPCTL

ETHNIC	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Black	110	0	91	36.46	25.74	662.441
White	1349	0	100	60.45	26.04	678.336
Hispanic	94	3	98	46.01	26.26	689.732
Other	62	0	98	46.83	29.35	861.252
Total	1615	0	100	57.45	27.07	733.048

Table B-12. TBS Class Standing Percentile by Ethnic Category ANOVA

ANOVA

TBSPCTL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	79854.580	3	26618.193	38.867	.000
Within Groups	1103285	1611	684.845		
Total	1183139	1614			

Table B-13. TBS Class Standing Percentile by MOS Guarantee

Case Summaries

TBSPCTL

CONTRACT	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Air	576	1	100	62.84	24.71	610.773
Ground	1039	0	100	54.46	27.86	776.391
Total	1615	0	100	57.45	27.07	733.048

Table B-14. TBS Class Standing Percentile by MOS Guarantee Independent Samples T-Test

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower		Lower	Upper
TBSPCTL	Equal variances assumed	17.342	.000	6.026	1613	.000	8.38	1.39	5.66 11.11
	Equal variances not assumed			6.236	1310.459	.000	8.38	1.34	5.75 11.02

Table B-15. USNA Order of Merit Percentile by Summer Training Program

Case Summaries

OOMPCTL

SUMTRN	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Leatherneck	830	0	100	46.61	28.54	814.289
No Training	355	1	100	47.08	26.52	703.070
Bulldog	430	0	100	42.17	29.11	847.319
Total	1615	0	100	45.53	28.32	801.800

Table B-16. USNA Order of Merit Percentile by Summer Training Program ANOVA

ANOVA

OOMPCTL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6673.404	2	3336.702	4.178	.015
Within Groups	1287432	1612	798.655		
Total	1294106	1614			

Table B-17. USNA Academic QPR by Summer Training Program

Case Summaries

CUM_AQPR

SUMTRN	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Leatherneck	830	2.02	4.00	2.7959	.4656	.217
No Training	355	2.01	3.91	2.7097	.3935	.155
Bulldog	430	2.00	3.93	2.5927	.3894	.152
Total	1615	2.00	4.00	2.7228	.4392	.193

Table B-18. USNA Academic QPR by Summer Training Program ANOVA

ANOVA

CUM_AQPR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.780	2	5.890	31.692	.000
Within Groups	299.582	1612	.186		
Total	311.362	1614			

Table B-19. USNA Military QPR by Summer Training Program

Case Summaries

CUM_MQPR

SUMTRN	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Leatherneck	830	2.41	3.88	3.2582	.2772	7.683E-02
No Training	355	2.35	3.94	3.1608	.2909	8.461E-02
Bulldog	430	2.28	3.83	3.0681	.3406	.116
Total	1615	2.28	3.94	3.1862	.3088	9.537E-02

Table B-20. USNA Military QPR by Summer Training Program ANOVA

ANOVA

CUM_MQPR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.530	2	5.265	59.182	.000
Within Groups	143.404	1612	8.896E-02		
Total	153.934	1614			

Table B-21. TBS Class Standing Percentile by Academic Major Grouping

Case Summaries

TBSPCTL

MAJGROUP	N	Minimum	Maximum	Mean	Std. Deviation	Variance
1	506	2	100	65.73	24.48	599.065
2	398	0	99	51.02	27.11	734.781
3	711	0	100	55.16	27.43	752.220
Total	1615	0	100	57.45	27.07	733.048

Table B-22. TBS Class Standing Percentile by Academic Major Grouping ANOVA

ANOVA

TBSPCTL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	54827.050	2	27413.525	39.165	.000
Within Groups	1128312	1612	699.946		
Total	1183139	1614			

Table B-23. TBS Class Standing Percentile by Service Selection or Service Assignment/Capstone Course Participant

Case Summaries

TBSPCTL

SERVICE	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Service Assignment	663	0	100	59.16	26.29	691.287
Service Selection	952	0	100	56.26	27.56	759.420
Total	1615	0	100	57.45	27.07	733.048

Table B-24. TBS Class Standing Percentile by Service Selection or Service Assignment/Capstone Course Participant Independent Samples T-Test

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
TBSPCTL	Equal variances assumed Equal variances not assumed	3.107 .	.078 .	-2.124 -2.142	1613 1465.369	.034 .032	-2.91 -2.91	1.37 1.36	-5.59 -5.57 -.22 -.24	

Table B-25. TBS Class Standing Percentile by Parents' Military Service Experience

Case Summaries

TBSPCTL

SVCJRCOM	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Parents with no Service	783	0	100	56.81	27.24	742.142
Parents with Service (Non-USMC)	611	0	100	58.07	26.71	713.433
Parents with Service (USMC)	221	1	99	58.02	27.55	758.899
Total	1615	0	100	57.45	27.07	733.048

Table B-26. TBS Class Standing Percentile by Parents' Military Service Experience
ANOVA

ANOVA

TBSPCTL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	632.247	2	316.123	.431	.650
Within Groups	1182507	1612	733.565		
Total	1183139	1614			

Table B-27. USNA Order of Merit Percentile by Academic Major Group

Case Summaries

OOMPCTL

MAJGROUP	N	Minimum	Maximum	Mean	Std. Deviation	Variance
1	506	0	100	52.81	26.29	691.373
2	398	0	100	38.36	28.06	787.402
3	711	0	100	44.37	28.68	822.764
Total	1615	0	100	45.53	28.32	801.800

Table B-28. USNA Order of Merit Percentile by Academic Major Group ANOVA

ANOVA

OOMPCTL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	48201.284	2	24100.642	31.182	.000
Within Groups	1245904	1612	772.894		
Total	1294106	1614			

Table B-29. USNA MQPR by Academic Major Group

Case Summaries

CUM_MQPR

MAJGROUP	N	Minimum	Maximum	Mean	Std. Deviation	Variance
1	506	2.38	3.94	3.2939	.2780	7.726E-02
2	398	2.36	3.88	3.0981	.3072	9.440E-02
3	711	2.28	3.88	3.1589	.3094	9.571E-02
Total	1615	2.28	3.94	3.1862	.3088	9.537E-02

Table B-30. USNA MQPR by Academic Major Group ANOVA

ANOVA

CUM_MQPR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.489	2	4.744	52.947	.000
Within Groups	144.445	1612	8.961E-02		
Total	153.934	1614			

Table B-31. USNA AQPR by Academic Major Group

Case Summaries

CUM_AQPR

MAJGROUP	N	Minimum	Maximum	Mean	Std. Deviation	Variance
1	506	2.05	4.00	2.8130	.4253	.181
2	398	2.01	3.98	2.6261	.4427	.196
3	711	2.00	4.00	2.7129	.4350	.189
Total	1615	2.00	4.00	2.7228	.4392	.193

Table B-32. USNA AQPR by Academic Major Group ANOVA

ANOVA

CUM_AQPR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.914	2	3.957	21.022	.000
Within Groups	303.447	1612	.188		
Total	311.362	1614			

Table B-33. USNA Order of Merit Percentile by Race/Ethnic Group

Case Summaries

OOMPCTL

ETHNIC	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Black	110	0	100	24.18	21.66	469.112
White	1349	0	100	48.59	28.10	789.699
Hispanic	94	1	95	32.71	21.83	476.574
Other	62	0	99	36.28	28.81	829.809
Total	1615	0	100	45.53	28.32	801.800

Table B-34. USNA Order of Merit Percentile by Race/Ethnic Group ANOVA

ANOVA

OOMPCTL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	83518.117	3	27839.372	37.047	.000
Within Groups	1210588	1611	751.451		
Total	1294106	1614			

Table B-35. USNA Cumulative Military QPR by Race/Ethnic Group

Case Summaries

CUM_MQPR

ETHNIC	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Black	110	2.35	3.59	3.0113	.2850	8.124E-02
White	1349	2.28	3.94	3.2130	.3042	9.251E-02
Hispanic	94	2.51	3.61	3.0854	.2930	8.583E-02
Other	62	2.41	3.69	3.0653	.3187	.102
Total	1615	2.28	3.94	3.1862	.3088	9.537E-02

Table B-36. USNA Cumulative Military QPR by Race/Ethnic Group ANOVA

ANOVA

CUM_MQPR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.197	3	2.066	22.526	.000
Within Groups	147.737	1611	9.171E-02		
Total	153.934	1614			

Table B-37. USNA Cumulative Academic QPR by Race/Ethnic Group

Case Summaries

CUM_AQPR

ETHNIC	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Black	110	2.01	3.52	2.3948	.2953	8.718E-02
White	1349	2.00	4.00	2.7697	.4383	.192
Hispanic	94	2.02	3.68	2.5114	.3252	.106
Other	62	2.09	3.81	2.6060	.4649	.216
Total	1615	2.00	4.00	2.7228	.4392	.193

Table B-38. USNA Cumulative Academic QPR by Race/Ethnic Group ANOVA

ANOVA

CUM_AQPR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	19.848	3	6.616	36.563	.000
Within Groups	291.513	1611	.181		
Total	311.362	1614			

APPENDIX C. REGRESSION ANALYSIS RESULTS

Table C-1. Primary Model Variables Entered/Removed

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	OOMPCTL, SVCJR, PRIMARNE, NOTRNG, ETHOTHER, ETHHISP, VAR_LTR, GROUP2, AIRCONT, ETHBLACK, SVCJRMAR, BULLDOG, PRISVC, GROUP1, AGECOMM, SERVSEL ^a	.	Enter

a. All requested variables entered.

b. Dependent Variable: TBSPECTL

Table C-2. Primary Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.625 ^a	.391	.385	21.23

a. Predictors: (Constant), OOMPCTL, SVCJR, PRIMARNE, NOTRNG, ETHOTHER, ETHHISP, VAR_LTR, GROUP2, AIRCONT, ETHBLACK, SVCJRMAR, BULLDOG, PRISVC, GROUP1, AGECOMM, SERVSEL

Table C-3. Primary Model Analysis of Variance (ANOVA)

ANOVA^b

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	462763.1	16	28922.695	64.159	.000 ^a
Residual	720376.1	1598	450.799		
Total	1183139	1614			

a. Predictors: (Constant), OOMPCTL, SVCJR, PRIMARNE, NOTRNG, ETHOTHER, ETHHISP, VAR_LTR, GROUP2, AIRCONT, ETHBLACK, SVCJRMAR, BULLDOG, PRISVC, GROUP1, AGECOMM, SERVSEL

b. Dependent Variable: TBSPECTL

Table C-4. Primary Model Coefficients

Coefficients^a

Model	Unstandardized Coefficients			t	Sig.
	B	Std. Error	Beta		
1	(Constant)	44.299	15.928	2.781	.005
	VAR_LTR	3.224	1.150	.2803	.005
	AGECOMM	-.545	.716	-.762	.446
	ETHBLACK	-8.784	2.229	-3.941	.000
	ETHHISP	-4.906	2.339	-2.098	.036
	ETHOTHER	-6.264	2.784	-2.250	.025
	SVCJR	1.717	1.153	1.489	.137
	SVCJRMAR	2.713	1.630	1.665	.096
	PRISVC	-4.256	1.648	-2.583	.010
	PRIMARNE	10.466	3.019	3.466	.001
	BULLDOG	9.230	1.954	4.723	.000
	NOTRNG	-.111	2.010	-.055	.956
	AIRCONT	.694	1.151	.603	.547
	GROUP1	5.830	1.273	4.579	.000
	GROUP2	.368	1.358	.271	.786
	SERVSEL	-5.273	1.852	-2.847	.004
	OOMPCTL	.509	.020	24.840	.000

a. Dependent Variable: TBSPECTL

Table C-5. Secondary Model Variables Entered/Removed

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	CUM_AQP R, SVCJR, PRIMARN E, NOTRNG, ETHOTHE R, ETHHISP, GROUP1, VAR_LTR, AIRCONT, ETHBLAC K, SVCJRMA R, PRISVC, BULLDOG, GROUP2, AGECOM M, CUM_MQP R, SERVSEL ^a	.	Enter

a. All requested variables entered.

b. Dependent Variable: TBSPCTL

Table C-6. Secondary Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.652 ^a	.426	.419	20.63

a. Predictors: (Constant), CUM_AQPR, SVCJR,
PRIMARNE, NOTRNG, ETHOTHER, ETHHISP,
GROUP1, VAR_LTR, AIRCONT, ETHBLACK,
SVCJRMAR, PRISVC, BULLDOG, GROUP2,
AGECOMM, CUM_MQPR, SERVSEL

Table C-7. Secondary Model Analysis of Variance (ANOVA)

ANOVA^b

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	503510.9	17	29618.291	69.597	.000 ^a
Residual	679628.3	1597	425.566		
Total	1183139	1614			

a. Predictors: (Constant), CUM_AQPR, SVCJR, PRIMARNE, NOTRNG, ETHOTHER, ETHHISP, GROUP1, VAR_LTR, AIRCONT, ETHBLACK, SVCJRMAR, PRISVC, BULLDOG, GROUP2, AGECOMM, CUM_MQPR, SERVSEL

b. Dependent Variable: TBSPECTL

Table C-8. Secondary Model Coefficients

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-75.028	16.675		-4.500	.000
VAR_LTR	3.476	1.120	.060	3.103	.002
AGECOMM	-.956	.696	-.035	-1.374	.170
ETHBLACK	-8.669	2.168	-.081	-3.998	.000
ETHHISP	-4.490	2.275	-.039	-1.974	.049
ETHOTHER	-5.072	2.707	-.036	-1.873	.061
SVCJR	1.528	1.121	.027	1.363	.173
SVCJRMAR	2.082	1.584	.026	1.314	.189
PRISVC	-4.026	1.605	-.059	-2.508	.012
PRIMARNE	10.047	2.942	.080	3.415	.001
BULLDOG	16.338	1.938	.267	8.430	.000
NOTRNG	4.512	1.968	.069	2.292	.022
AIRCONT	-.215	1.123	-.004	-.192	.848
GROUP1	4.138	1.252	.071	3.305	.001
GROUP2	.269	1.318	.004	.204	.838
SERVSEL	-5.135	1.809	-.093	-2.838	.005
CUM_MQPR	33.617	2.498	.383	13.458	.000
CUM_AQPR	15.559	1.750	.252	8.891	.000

a. Dependent Variable: TBSPECTL

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